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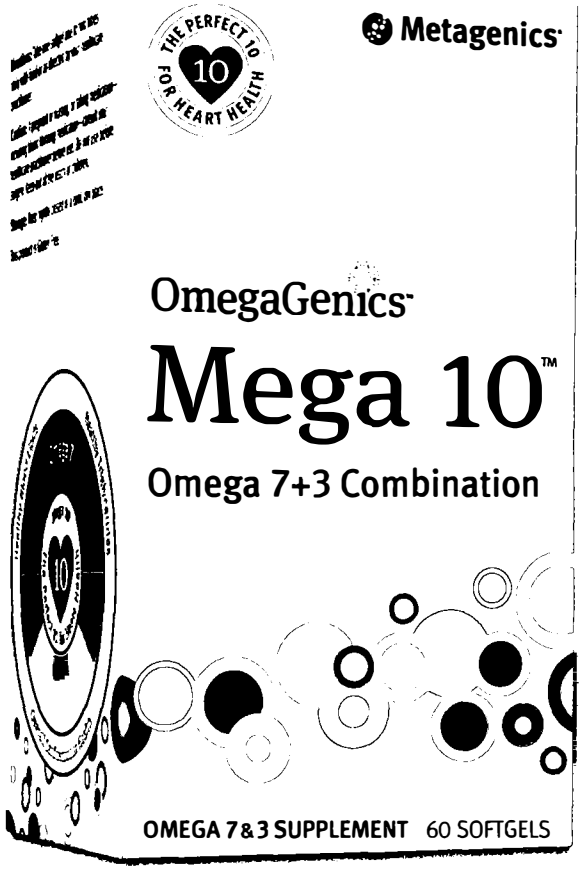


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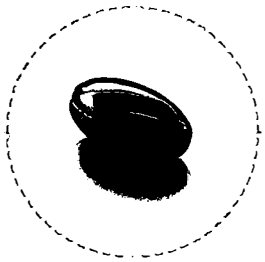

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1. Agadjanyan M, Vasilevko V, et al. J Chronic Fatigue Syndr 2003;11(3):23-26. 2. Ellithorpe RR, Settineri R, et al. J Am Nutraceut Assoc 2005; 6(1):23-28.
3. Ellithorpe RA, Settineri R, et al. Funct Food Health Dis. 2011;1(8): 295-250. 4. Nicolson GL, Ellithorpe R, et al. J Am Nutraceut Assoc. 2010;13(1):10-14.

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# From the Publisher

**IV Bag Shortages**

One of the great ironies is that while health authorities have called for curtailment of manufacturing by the compounding pharmacies, pharmaceutical companies have not been able to meet the drug and medical supply requirements of hospitals and clinics. In 2012, oncologists were unable to acquire sufficient chemotherapy drugs; manufacturers claimed that there was an overwhelming need for the drugs. Since 2010, vitamin injectables and some mineral injectables have no longer been manufactured by pharmaceutical companies; compounding pharmacies have largely taken on the job of manufacturing injectables. IV solution bags are a "staple commodity" for hospital care and have always been available in quantity. However, in 2012, Braun initiated steps to simplify the manufacturing of its IV bags and bottles after years of exemplary production. Braun decided to discontinue providing IV solutions in glass bottles. This was not much of a concern for hospitals and clinics; hospital IV setups were definitely geared for IV bags rather than bottles. However, integrative clinics and chelation centers have long favored IV bottles to avoid injectable drug and nutrient exposure to plastic or plastic-like materials. Braun's IV bags claim to be nonplastic. The other two manufacturers, Baxter and Hospira, do not disclaim that their bags are made of plastic. Early in 2013 Braun began to experience manufacturing problems due to equipment failure and was unable to meet the high demand for its IV bags. Baxter and Hospira both stepped in to meet the enormously growing need.

However, in 2014, the situation for Braun changed from providing limited quantities of IV bags to not providing any IV bags. Baxter and Hospira were able to provide limited

***continued on page 8 ➤***

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1) Enhanced glutathione levels in blood and buccal cells by oral glutathione supplementation. J.P. Richie. Presented at Experimental Biology, April 22, 2013.

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## Letter from the Publisher

**continued from page 6**

supplies for the critical shortage but only for a short period. By mid-February 2014, Baxter and Hospira were rationing shipments of IV bags only to hospitals. While the original shortage was for 1000 ml bags of normal saline, the shortage extended to all IV solutions, including 0.9% saline, 0.45% saline, 5% dextrose, and Lactate Ringer's solutions. As of April 2014, it was impossible to purchase any form of IV solution. Hospitals and clinics are improvising by treating dehydration using one IV bag of solution for 72 hours instead of the typical 24-hour drip. In addition, patients are being switched from IV hydration to oral hydration. Critical situations treated in the OR and ICU are also cutting back on IV hydration. It is clear that hospitals are trying to make do by limiting their IV solutions, but at what point will they run out and face tragedy? For the chelation clinic, however, IV bags are required and are completely unavailable – will these clinics be forced to shut down operations?

What is the cause of this IV bag fiasco? Officially, Braun admits that it is planning a major change in its IV bag manufacturing. However, this does not explain why the shortage has shut down not only Braun but also Baxter and Hospira. One source explained to me that Braun had manufacturing problems in 2012. IV bags were found that had been leaking; apparently the bag machinery had a malfunction. Braun ordered a recall of millions of IV bags. Of course, hospitals and clinics still needed bags, so Braun, Baxter, and Hospira were obliged to manufacture millions of IV bags to replace the defective ones. While the FDA and manufacturers blame the high incidence of flu requiring IV hydration this past winter for the inordinate need for IV solutions, it appears that the massive IV bag recall was the culprit. There are some unconfirmed reports that there will be limited IV bag supplies forthcoming in the weeks ahead. However, there are no estimated dates for when the IV manufacturing will return to normal.

In the meantime, in another irony, at least one compounding pharmacy will be manufacturing limited supplies of IV bags for clinic use. The bags will have a very short shelf life and must be refrigerated until use. As expected, the bag price will dramatically increase. As inconvenient as this may seem, the compounding pharmacy is offering to help chelation and IV clinics that will soon face critical shortages. We must ensure that the FDA does not restrict the operations and manufacturing capabilities of the compounding pharmacies.

### Jenna Henderson, ND, on Chronic Kidney Disease

Twenty-one years ago, Jenna Henderson developed kidney disease – a rare condition called focal segmental glomerulosclerosis (FSGS). She was only 22 years old at

***continued on page 15 ➤***

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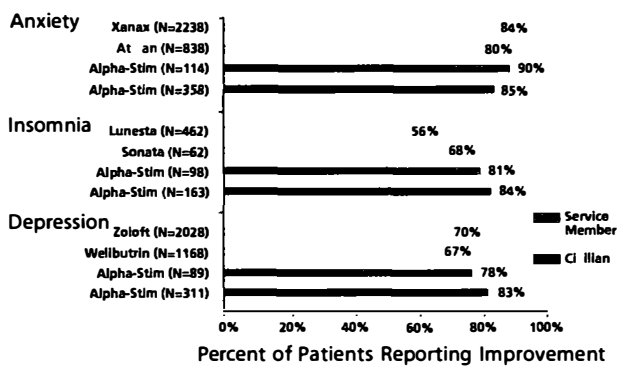


Patients who reported a positive response according to WebMD Drug Surveys, and Alpha-Stim Service Member and civilian surveys. Alpha-Stim Data from 2011 Military Service Member Survey (N=152) and Alpha-Stim Patient Survey (N=1,745). Conducted by Larry Price, PhD, Associate Dean of Research and Professor of Psychometrics and Statistics, Texas State University. *Pharmaceutical Survey Data from www.WebMD.com/drugs.* Accessed on October 28, 2011.

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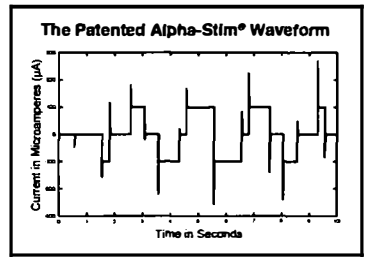


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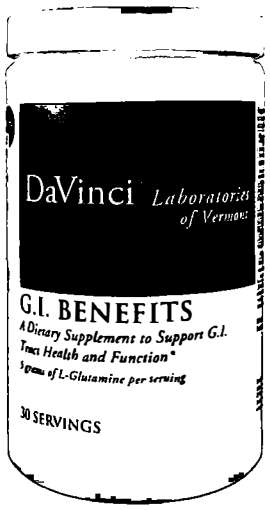


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## Best of Naturopathic Medicine 2015

The *Townsend Letter* is pleased to announce our seventh Best of Naturopathic Medicine competition. Naturopathic students, faculty, researchers, and practitioners are invited to submit research papers, reviews, and articles. Selected papers will be published in our February/March 2015 issue. The author of the winning paper will be awarded $850. Runner-up papers will be published and authors will receive an honorarium.

Papers submitted should be 1500 to 3500 words and referenced. Author guidelines are available at the *Townsend Letter* website: www.townsendletter.com. Papers should be submitted digitally, preferably as a Microsoft Word document. Papers authored by multiple writers are acceptable; the lead author should be an ND graduate or candidate of an accredited four-year naturopathic school. Papers submitted for the competition may not be submitted to other publications or have previously been published. All entries must be submitted by October 31, 2014.

Send papers to editorial@townsendletter.com. The subject line should read: "Paper for Best of Naturopathic Medicine 2015."

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## Letter from the Publisher
**continued from page 8**

the time and she consulted with numerous specialists in an attempt to prevent kidney failure. However, in three years she was forced to consider initiating dialysis. She had already begun an investigation of natural alternatives long before Google searches were available. After beginning dialysis, she was intent on finding herbals to support her heart, prevent bone loss, and maintain her immunity. She was successful in developing a natural approach to lessen the damage from dialysis. Succeeding in designing a protocol to help herself, she thought that this information would be very helpful to patients suffering from kidney disease and requiring dialysis. Jenna decided to become a naturopathic physician, enrolling at the University of Bridgeport. In the middle of her education she had a successful kidney transplant. Jenna wrote a doctoral thesis on the safety of herbal remedies with transplanted organs. Dr. Henderson has now established a practice that specializes in naturopathic nephrology. She consults with physicians and patients worldwide, having been recognized for knowledge in using natural remedies with kidney patients. Dr. Henderson's website, holistic-kidney.com, offers information and resources.

In this issue, Henderson explores strategies that doctors may use in managing inflammation in kidney disease. She writes that inflammation is hallmarked in kidney disease by proteinuria – and that proteinuria is easily visible to the naked eye as foamy urine. To the degree that there is a greater level of foaminess in the urine, there is more inflammation. While mainstream nephrology offers a myriad of drug agents to calm down inflammation, Henderson prefers to offer natural alternatives, starting with the diet. Fast foods are bad not only because of their high content of sugar and fat but also because of their high phosphate content. In addition fast foods are cooked in hydrogenated oils that tend to increase inflammation. However, Henderson is equally against consuming high levels of uncooked vegetable and nut oils that are high in omega-6 fatty acid content. She also advises against eating nuts that are high in omega-6 fats except for walnuts and macadamia nuts. She encourages the use of fish oil and eating fish that offer a higher ratio of omega-3 fats; she also encourages the use of clear flaxseed oil. The preferred oil for kidney patients, according to Henderson, is a saturated fat such as coconut oil. She cites how coconut oil helps in preserving nephron functioning. She also plugs hemp oil.

Henderson likes the kidney patient to consider a "semivegetarian" diet with rice, beans, and some animal protein. Vegetarians need to watch that they don't experience muscle wasting by diets that excessively avoid protein content. Dr. Henderson offers a reference showing that genetically modified corn contributes to kidney breakdown – a nice comeback for public health authorities enamored with GMO foods. She also offers a reference of how vaccine administration may cause kidney disease to be aggravated – another useful citation for the medical authorities who say that we need to "treat the herd," insisting that everyone be vaccinated.

Sorry, Starbucks lovers – coffee also aggravates kidney inflammation and it's not the caffeine, because green tea helps counter inflammation. The body's physiologic response to proteinuria and inflammation is to have the liver produce more cholesterol – but this shouldn't be the time to order a "statin." Henderson offers a citation showing how berberine may be very useful in this situation to reduce excess cholesterol synthesis. Henderson also touts the value of ginger in improving kidney functioning; I'll need to add that to my list of the great benefits of ginger. For those of you who did not get a chance to read Dr. Henderson's excellent primer on FSGS in the June 2013 *Townsend Letter*, the article is available on line.[1] Henderson provides a succinct description of the pathophysiology of FSGS in the first half of the article and then an insightful review of available medical treatment as well as naturopathic therapies for managing FSGS. I would think that much of her protocol for treating FSGS would also apply to the other nephropathies. In my Letter from the Publisher of June 2013, I stated that Henderson recommends avoiding the use of most herbs in working with transplant patients. In October 2013, we printed a letter from kidney patient and chiropractic physician Steven Hecht, who took me and Dr. Henderson to task for advising that transplant patients should avoid the use of herbs.[2] Henderson, who authored her naturopathic school thesis on this topic, responded to Hecht that kidney transplant patients face challenging issues in needing to maintain immunosuppression with drug therapy and that most herbals interfere with the immunosuppression. She did note that green tea would be acceptable. The letter and response by Hecht and Henderson are available on the *Townsend Letter* website for your review.[3]

Jonathan Collin, MD

### Notes

1. Henderson J. Focal segmental glomerulosclerosis: a naturopathic perspective. *Townsend Lett.* June 2013. http://www.townsendletter.com/June2013/focal0613.html.
2. Hecht S. Letter: Focal segmental glomerulosclerosis: a naturopathic perspective. *Townsend Lett.* : October 2013. http://www.townsendletter.com/Oct2013/ltrHecht_Henderson1013.html.
3. Ibid.

◆

# Standard Process Inc. Congratulates Herbalists Kerry Bone and Simon Mills on Earning Second Botanical Literature Award

For the second time in 10 years, renowned herbalists Kerry Bone and Simon Mills have earned the American Botanical Council's James A. Duke Excellence in Botanical Literature Award. The 2013 honor was given to Bone and Mills for their work on the second edition of *Principles and Practice of Phytotherapy: Modern Herbal Medicine* (2013), an herbal medicine clinical practice guide used by natural-medicine practitioners throughout the world.

"The landscape of herbal medicine is evolving every day," said Bone, cofounder and director of research and development for Australian herbal supplement manufacturer MediHerb. "With so much information now available, we needed to carefully review everything for its relevance to the clinical practitioner."

In 2005, the council established the James A. Duke Excellence in Botanical Literature Award to recognize books that provide significant contributions to literature in the fields of botany, taxonomy, ethnobotany, phytomedicine, and other disciplines related to the field of medicinal plants. First to receive the award were colleagues Bone and Mills for their book *The Essential Guide to Herbal Safety* (2005), which offered authoritative information and guidance on the safe use of herbs for all practitioners looking to integrate herbs into their practice. The second edition of *Principles and Practice of Phytotherapy*, published in 2013, offers practitioners extensively updated and relevant clinical data regarding the use of herbal remedies. It also provides new insight on herbal management of approximately 100 modern health conditions.

*Principles and Practice of Phytotherapy*, the pair's first collaboration, was originally published in 1999. With over 40,000 copies in circulation today, it is the leading text on herbal medicine in naturopathic and herbal colleges around the world. The second edition of the book took 14 years to publish.

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In 2014, Standard Process launched Cultivate by Standard Process, a new business that provides corporate wellness offerings to other companies. Cultivate works to assess and then deliver scalable wellness solutions to impact individual employees and the overall company using onsite chiropractic as a central component of the program.

Standard Process has been named a Top Workplace in Southeastern Wisconsin multiple times and is a member of the Inc. 5000 Honor Roll. For additional information about Standard Process, visit standardprocess.com.

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# The 2014 Annual Conference of the Oncology Association of Naturopathic Physicians: OncANP 2014

## by Jacob Schor, ND

I must start with a few disclaimers.

First, I am a member of the board of directors of the Oncology Association of Naturopathic Physicians (OncANP) and am currently president of that association and, most relevantly, a member of the group's conference planning committee. Thus I may be biased if I suggest that OncANP's most recent conference was superlative in any way.

Second, OncANP is focused on our members' educational needs and the conferences are designed to provide information on naturopathic oncology to this specific group of naturopathic physicians, not for a range of practitioners or patients interested in alternative or integrative medicine. Our association is not really trying to promote our conference, grow it larger, or attract a much larger number of attendees. We are happy with what we have going.

So if this is the case, why bother writing this article? I think it is important for us to share where our interests are taking us and to leave a trail for others who may wish to follow.

This conference struck a balance between the paradigm-shifting topics and the practical details of naturopathic cancer treatment. The two big questions for us naturopaths have always been, how can we change the terrain to reduce disease, and how can we stimulate the vital force? Thus in the guise of speaking about advances in understanding metabolic pathways with progressively more esoteric abbreviations, where mTOR is old hat and NF-kappaB is so yesterday, we do still care about the philosophic fundamentals.

How do we change the terrain? This year we brought several speakers whose presentations might be said to have been all about changing the terrain. Judy Fulop, ND, FABNO, spoke on the human biome and how it relates to cancer development and treatment. Thomas Seyfried, MD, spoke on how a ketogenic diet can change the underlying metabolic environment, making it difficult for cancer to survive. Valter Longo, PhD, spoke on short-term starvation/fasting diets and how they can selectively enhance chemotherapy action on cancer cells and how they shift metabolic function to limit cancer growth.


**Davis Lamson of the Tahoma Clinic and Dan Rubin, founding president of OncANP**

Our fascination with high-dose intravenous ascorbic acid treatments (IV-C) continues. Jeanne Drisko, MD, perhaps the world's foremost authority on IV-C, spoke to our membership for the first time. While this was something akin to "preaching to the choir," Drisko was successful at keeping her audience's attention, as she was able to talk in detail about protocols and techniques that a less experienced audience might not have found accessible. Especially interesting is Drisko's new interest, using IV-C in combination with hyperbaric oxygen and ketogenic diets.

From Judy Fulop's update on human microbiome research to Neil McKiney's recipes for making cannabis edibles, many of the lectures focused on practical matters. Frank Moscato, Esq., presented an extremely practical overview of how we might stay out of legal trouble as we push the limits of a traditional standard of care.

Lise Alschuler spoke on treating advanced ovarian cancer using case histories of several of her patients to explain her rationale in selecting treatments for this challenging disease.

How can we stimulate the body's own innate healing ability? Several speakers moved us in this direction. Jen Green and Paul Saunders presented a practical lecture on

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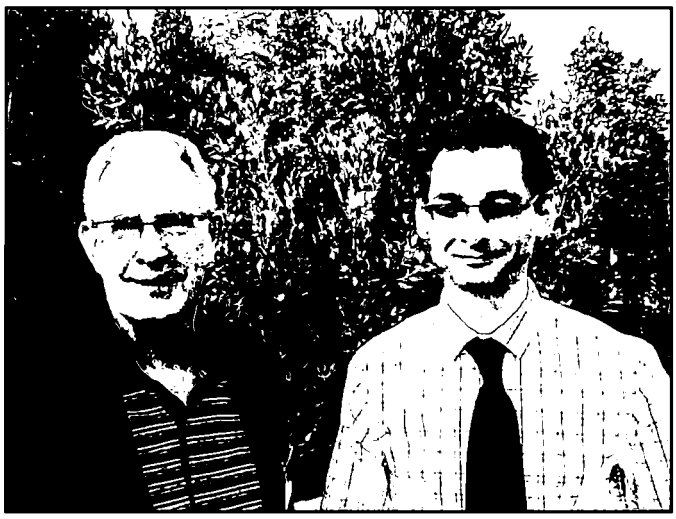
using homeopathy with cancer patients. Gurdev Parmar continued to tantalize us with data from his practice using locoregional hyperthermia and fever-range whole-body treatments. Parmar's preliminary results suggest that his protocol is having dramatic effects in treating advanced colon cancer and glioblastoma.

Tim and Shauna Birdsall from Cancer Treatment Centers of America provided an update on new chemotherapy drugs and how we might manage patients being treated with them.

In my recollection, the two most paradigm-shifting speakers were Seyfried and Longo, as they both focused on dietary strategies to use with cancer patients that were both new and controversial and at the same time traditional.

Seyfried presented a progression of arguments supporting the use of ketogenic diets, a topic that we first broached in 2013. Seyfried fulfilled our quest to hear information "straight from the horse's mouth." With the publication of his book *Cancer as a Metabolic Disease*, Seyfried has taken a dietary strategy first pioneered by the Cleveland Clinic 90 years ago to treat epilepsy and applied it to cancer, in particular to treating glioblastoma.[1]

Longo presented his most comprehensive lecture to date on the use of short-term dietary restriction, his euphemism for either short-term starvation or what we once called fasting, in the treatment of cancer. His fasting techniques have already demonstrated great utility in reducing the side effects of chemotherapy, and his new data suggest that fasting will have a desirable impact on disease-free progression and overall survival in a range of cancer types.[2] In the past, we have simply considered fasting patients in preparation for chemotherapy; now there is strong argument for cancer survivors to regularly engage in fasts once treatment is over. Talk about changing terrain and stimulating the vis medicatrix; what could more fundamental to naturopathic medicine than fasting?



**Thomas Seyfried and Michael Uzick, recipient of this year's President's Award**

As I'm something of a research geek, my favorite lecture at these conferences is always the yearly updates provided by Tina Kaczor and Alschuler. Even though my colleagues think that I keep up with the research, this pair always manage to dig up studies that are new to me and, more importantly, translate the data into a context that is useful for patient care. Perhaps the most meaningful study they mentioned this year was Hildebrand's October 2013 study linking excessive sitting with increased breast cancer risk and Lynch's 2014 paper linking excessive sitting to increased prostate cancer risk.[3,4] So I've been sitting here typing long enough and you've been reading this magazine long enough; it's time for both of us to get up and move around.

While OncANP may not be actively seeking people to attend our conferences, nonmembers are still welcome. OncANP's 2015 conference will be in Phoenix, Arizona, on Valentine's Day weekend, February 13–15. So mark your calendar now. These conferences are taped, and recordings can be purchased at www.oncanp.org.

Let me quote one of my more vocal critics, Davis Lamson, ND, who has practiced in the Tahoma Clinic with Jonathan Wright, MD, for nearly four decades:

> It was terrific from the well-presented opening remarks of Dan Rubin right through the sparkling Lise and Tina show. ...
>
> Each year it is repeatedly said by conference attendees that it was the BEST conference, that it was the only REAL conference, etc., etc.
>
> After the enthusiastic success of first one, I was worried as to whether we could do that again. Well, we have twice more. So I guess we can.
>
> But after all, we have such good material and the field seems one of the few that has such vital questions still to be answered, one of the few with such intriguing mysteries to be solved.

## Notes


1. Seyfried TN, Marsh J, Shelton LM, Huysentruyt LC, Mukherjee P. Is the restricted ketogenic diet a viable alternative to the standard of care for managing malignant brain cancer? *Epilepsy Res.* 2012 Jul;100(3):310–326. doi:10.1016/j.eplepsyres.2011.06.017. Epub 2011 Aug 31.
2. Fontana L, Adelaiye RM, Rastelli AL, et al. Dietary protein restriction inhibits tumor growth in human xenograft models. *Oncotarget.* 2013 Dec;4(12):2451–2461.
3. Hildebrand JS1, Gapstur SM, Campbell PT, Gaudet MM, Patel AV. Recreational physical activity and leisure-time sitting in relation to postmenopausal breast cancer risk. *Cancer Epidemiol Biomarkers Prev.* 2013 Oct;22(10):1906–1912. doi:10.1158/1055-9965.EPI-13-0407.
4. Lynch BM, Friedenreich CM, Kopciuk KA, Hollenbeck AR, Moore SC, Matthews CE. Sedentary behavior and prostate cancer risk in the NIH-AARP Diet and Health Study. *Cancer Epidemiol Biomarkers Prev.* 2014 Feb 13.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# Pathways to Healing

**by Elaine Zablocki**

## CAM Professions Discuss Their Role in Primary Care

Thanks to the Affordable Care Act, an increasing number of people have health insurance. At the same time, the number of primary-care MDs in the country is declining. Older docs retire, while most medical students choose to enter specialties that pay better than primary care. Just search online for "doctor shortage" and you'll find 100 articles that discuss this problem and suggest possible fixes.

As part of this discussion, some advocates for complementary and alternative medicine point out that in many respects, CAM practitioners already function as primary-care practitioners. Patients come to them directly, and those patients arrive with a wide array of problems. Of course, perceptions of the subject depend on how you define primary care, and also on where you live. "This is such a fluid area," says Michael Goldstein, PhD, professor of public health and senior research scientist at the UCLA Center for Health Policy Research. "Scope-of-practice and licensure laws vary from state to state, overlaid by financing requirements for special programs. Some states recognize certain providers, but only for underserved populations. They may recognize them as primary-care practitioners, but only in rural areas where there are few providers."

Goldstein is the coauthor of a new report called *Meeting the Nation's Primary Care Needs: Current and Prospective Roles of Doctors of Chiropractic and Naturopathic Medicine, Practitioners of Acupuncture and Oriental Medicine, and Direct-Entry Midwives*. This report is extremely valuable as a nuanced description of four CAM disciplines, and as the start of a conversation about their role in primary care.

We have this report thanks to the work of the Academic Consortium for Complementary and Alternative Health Care (ACCAHC), which decided to take a closer look at the potential value of the CAM disciplines in primary care. These four disciplines represent 106,000 health-care practitioners. "Even though significant numbers of people actively use these four licensed disciplines as their first choice for primary care, workforce analyses have not included the potential contributions of these disciplines," Goldstein says.

In an executive summary and introductory chapter, Goldstein and John Weeks, codirector of the project and ACCAHC's executive director, offer analysis and recommendations. "The provision of primary care is already a significant part of the work and self-identification of each of these disciplines," they write. "Formal recognition of these four disciplines as primary care ... is already a fact across significant parts of the United States." They call upon the leaders of the CAM disciplines to "clarify *your* discipline's relationship with primary care in conventional medicine by identifying gaps in training and specify how these gaps might be addressed. ... Clarify the unique contribution [your] approach can make to conventional primary care practice and coordinated care provided in patient-centered medical homes."

**Michael Goldstein, PhD**

To develop this report, the ACCAHC Primary Care Project worked in partnership with national academic organizations associated with the four disciplines. The Association of Accredited Naturopathic Medical Colleges, the Association of Chiropractic Colleges, the Council of Colleges of Acupuncture and Oriental Medicine, and the Midwifery Education Accreditation Council each selected a team of authors for a discipline-specific chapter, and later reviewed and endorsed that chapter.

The chapter on each discipline describes its role in providing primary care. Topics include state regulatory status, government agency recognition, educational standards, accreditation requirements, and scope of practice. The authors discuss the typical practice model in their discipline, its role in wellness promotion, and internal disagreements over the profession's role in primary care.

The report states, "The goal of this project is to open a dialogue that will assist policymakers, healthcare practitioners and other concerned parties in discovering the optimal use of these disciplines as part of the nation's primary care matrix." In fact, within a few months, the publication of the report led to an important invitation. On April 30 to May 2, the American Association of Medical Colleges was to hold its 10th Annual Healthcare Workforce Research Conference, titled "Finding the Right Fit: The Workforce Needed to Support the ACA."

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**Diversity Within the CAM Disciplines**

One of the most interesting facts that emerged during the writing of the ACCAHC report is the wide diversity of viewpoints among the CAM disciplines, and also within each of the professions. Some practitioners would like to expand their role as primary-care providers, while others are more comfortable with their current roles. The report says, "In each of the acupuncture and Oriental medicine, chiropractic and naturopathic medicine professions, a subset of practitioners is clearly not interested in formally taking on the obligations and responsibilities (e.g. 24-hour pagers, electronic health records and significant upfront financial costs) that they associate with the practice of conventional primary care. It is noteworthy that this lack of desire to assume the responsibilities associated with conventional primary care practice coexists with an expectation that they can continue to treat a broad array of conditions and to be directly accessed by patients."

Each of the disciplines includes a number of different viewpoints about what sorts of situations practitioners are trained to deal with. "Viewpoints in Chinese medicine range from those who choose to function entirely within that system, to others who believe that with additional education and training they could function effectively within, and contribute to, the conventional medical system," Goldstein says. "There is significant disagreement within each of these professions about whether it is a good idea to enhance their ability to work as primary care providers."

For example, acupuncturists have a number of treatments available for skin problems. To serve effectively as primary-care practitioners, they might also benefit from training in methods from the Western tradition. "To some extent, younger people may be more open to change," Goldstein observes. "It may be the case that younger practitioners are more ready to accept both that there are limits to their current knowledge, and that those limitations could be overcome by additional training."

Nowadays conventional medicine is learning how to serve people more effectively through team-based approaches that include physicians, nurses, nurse practitioners, and dietitians. "But among MDs significant resistance to such partnerships remains," Goldstein says. "The conventional establishment is not eager to partner with chiropractors and acupuncturists, and the CAM professions are divided and not terribly enthusiastic about partnerships with MDs."

On the other hand, there is a growing need for practitioners who can meet the primary-care needs of patients, and there are some CAM professionals who would welcome an expanded role within conventional medicine. "The most likely way for this situation to change is if reimbursements evolve in a new direction," Goldstein says. "If insurance companies decide that CAM practitioners with expanded training are eligible for insurance coverage for certain conditions, you'd see some practitioners voting with their feet."

Goldstein hopes that the ACCAHC report will serve as one step toward a more serious engagement with issues related to primary care. "Everybody agrees that our current medical system fails in terms of providing good primary care. Everybody also agrees that the answer to that does not lie with just graduating more physicians. Now is the time to have serious debate about what we mean by primary care, and how we can move towards improving it."

**What Does this Mean for Us as Consumers?**

For the layperson with an interest in complementary and alternative medicine, one of the most interesting points that emerges from this report is the significant variability within the CAM professions. It means that when we seek help, we are responsible for evaluating practitioners in terms of our own needs.

"From the standpoint of a consumer, particularly someone who has a serious condition, it is vital that they find a provider who has experience with this particular condition," says Goldstein. "In fact, that is the same rule you'd apply when seeking a conventional physician. If you have a serious health problem, the fact that someone has an MD degree means very little. You want a person who has dealt with this particular type of problem as much as possible, fairly recently. The same applies with CAM."

Chronic conditions that do not respond readily to conventional treatment are one of the main reasons that people seek alternative practitioners. In that situation, Goldstein suggests, it's important to have reasonable expectations. "You are seeking enhanced functioning, decreased pain, more psychological well-being. You don't want to use invasive methods where the negative outcomes are disproportionate to the positive results. Those are all reasonable expectations to have," he says. "But if someone says, 'I am going to cure this condition, you will never have to cope with this problem again,' I would be skeptical. It doesn't matter what sort of training that person has ... they should also have an appropriate sense of their own limitations."

Anyone seeking care for a chronic condition will be in a relationship with that provider for weeks, months, maybe years. At the start of this relationship, it makes sense to ask, what are reasonable expectations for me to have if I become your patient? What might be different in six weeks? Six months? In a year? These questions are useful for setting expectations at the start of the healing relationship, and for reviewing progress over time. "From my perspective, one of the great values of alternative medicine is that it encourages people to be skeptical and critical of conventional medicine," Goldstein says. "That is a very good thing, and that same stance should be brought to bear when dealing with alternative medicine."

**Resources**

The complete report *Meeting the Nation's Primary Care Needs: Current and Prospective Roles of Doctors of Chiropractic and Naturopathic Medicine, Practitioners of Acupuncture and Oriental Medicine, and Direct-Entry Midwives* is available for download at the ACCAHC website. For more information, see:
http://www.accahc.org/brief-history
http://www.accahc.org/primary-care-project

Elaine Zablocki has been a freelance health-care journalist for more than 20 years. She was the editor of *Alternative Medicine Business News* and *CHRF News Files*. She writes regularly for many health-care publications.

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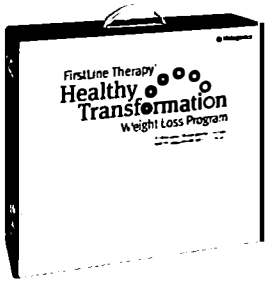


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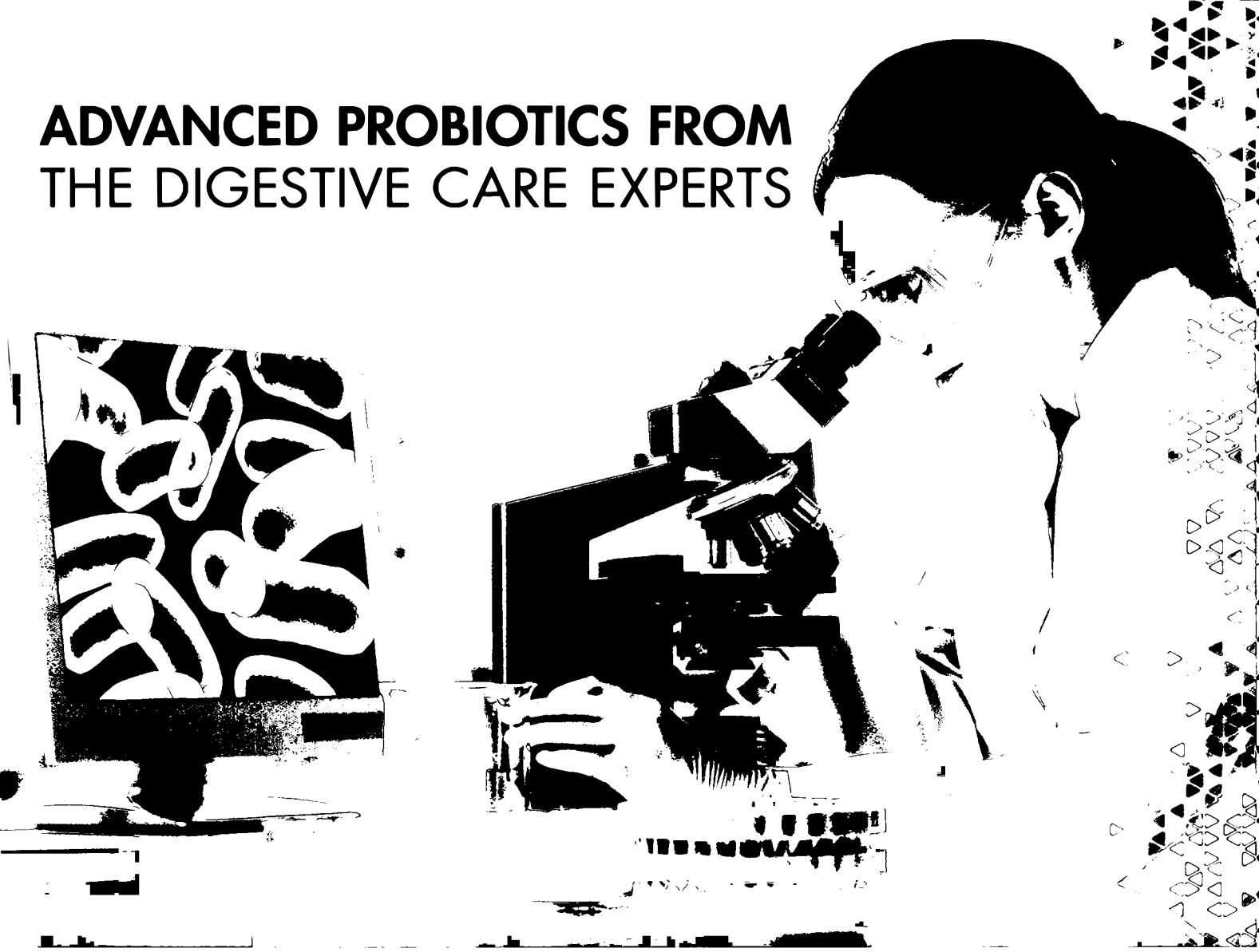

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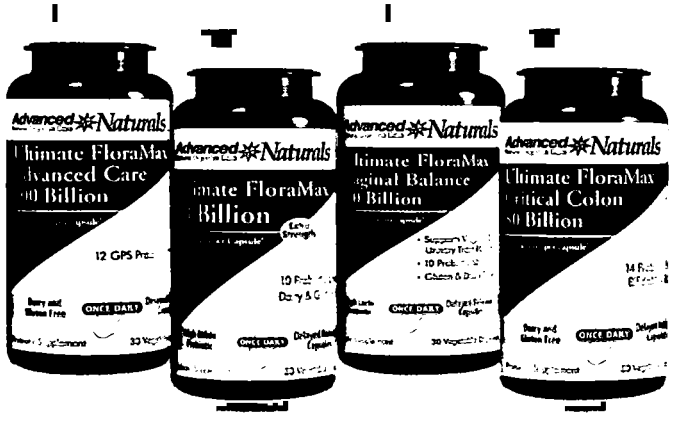


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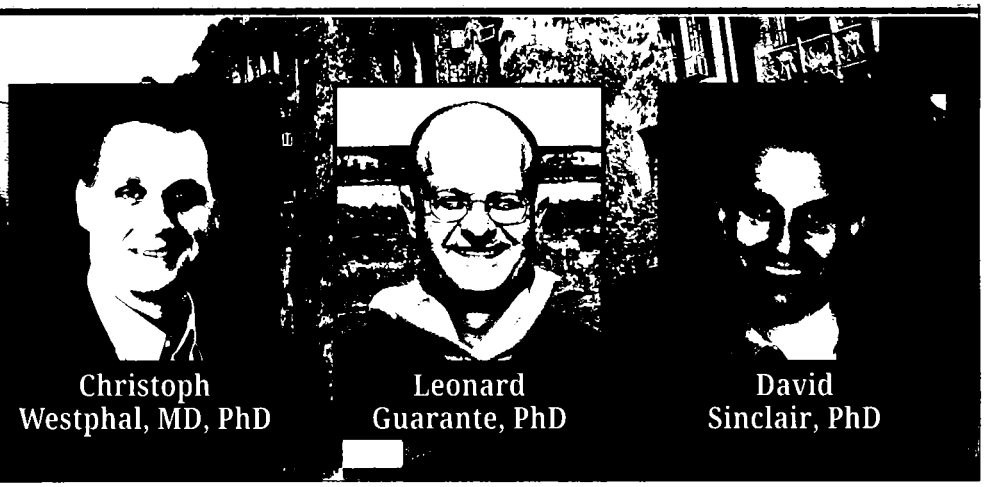

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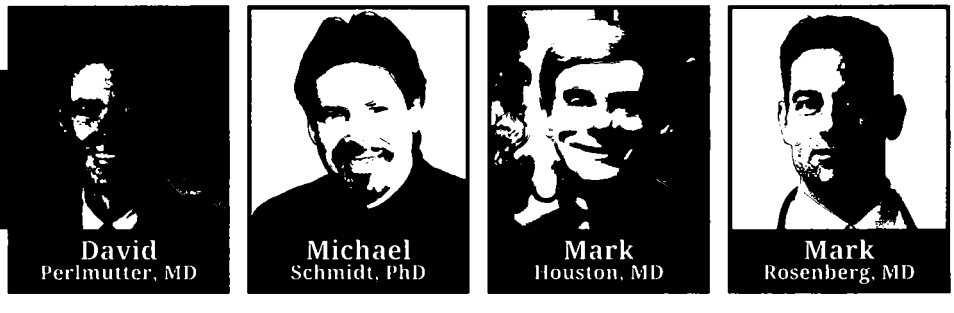

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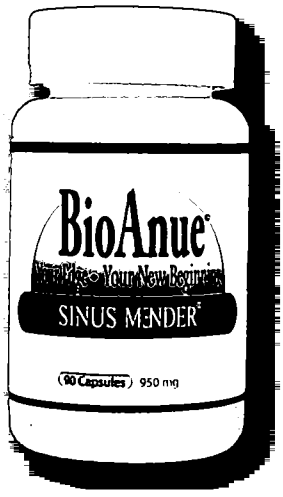


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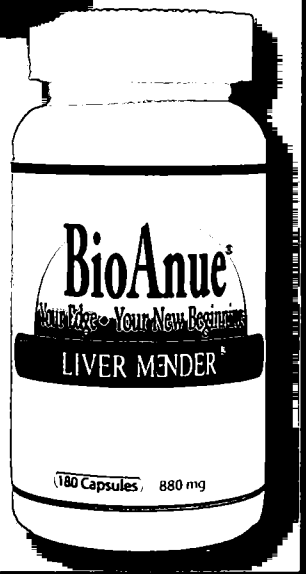


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# Shorts

**briefed by Jule Klotter**
**jule@townsendletter.com**

### Aluminum Vaccine Adjuvants and Autoimmune Disease

For over 80 years, aluminum salts have been used as vaccine adjuvants, compounds that stimulate immune response to vaccine antigens. Without these powerful immune system stimulators, many vaccines would have little effect. Yet this combination of potent immune-stimulating adjuvants and antigens that resemble self-antigens ("molecular mimicry") triggers autoimmune responses in some adults and children. Arthritis, type 1 diabetes, multiple sclerosis, lupus, macrophagic myofasciitis, and autism spectrum disorders are among the autoimmune/inflammatory conditions linked to aluminum-adjuvanted vaccines. In a 2012 article for *Lupus,* L. Tomljenovic and C. A. Shaw explain why neurotoxic and immune-stimulating aluminum (Al) adjuvants are particularly risky for young children. Nearly all vaccines that the Centers for Disease Control and Prevention (CDC) recommends for children under 6 months of age (i.e., DTaP, Hep B, Hib, PCV) contain aluminum salts, according to the CDC's "Vaccine Excipient & Media Summary" (September 2013).

Infants lack the immune system maturity to develop disease immunity from a single dose of a vaccine. Consequently, the CDC recommends that infants receive boosters at 2, 4, and 6 months of age. Repeated vaccination with immune-stimulating adjuvants forces the immature immune system to produce pro-inflammatory cytokines at higher levels than normal. Infants' less robust production of pro-inflammatory cytokines "may be an important developmental program of the neonate, rather than a defect because the anti-inflammatory phenotype may be beneficial to the neonate at a time when tissue development is taking place at a rapid pace," the authors state. Repetitive exposure to aluminum adjuvants not only disrupts normal immune development, it can also promote "immune hyperactivity, a known risk for autoimmune disease." In addition, infant physiology is less able to protect the brain and eliminate neurotoxins such as aluminum. Neither the blood-brain barrier nor the renal system is fully developed, according to Tomljenovic and Shaw.

Vaccine safety trials – whether by design or ignorance – have often used Al adjuvant preparations or other Al-containing vaccines as the control instead of comparing the vaccine with something benign such as saline. Consequently, researchers find no evidence of toxicity; the vaccine is as safe as the neurotoxic, immune-stimulating control. Moreover, vaccine safety studies typically exclude the very population most likely to experience adverse effects: those with a personal or a familial history of developmental delay or neurological disorders. At this point, the actual risk-benefit of aluminum-adjuvanted vaccines is unknown. Instead of performing high-quality research, mainstream medicine repeats the mantra of vaccine safety like a religious creed.

The US Vaccine Adverse Event Reporting System (VAERS), which relies on volunteer reports, is the sole means of tracking negative effects. "VAERS receives around 30,000 reports annually, with 13% classified as serious (e.g., associated with disability, hospitalization, life-threatening illness or death)," according to its website. That's 3900 *serious* events reported each year. How many events go unreported?

As Tomljenovic and Shaw state in their conclusion, we need "a more rigorous evaluation of potential vaccine-related adverse health impacts in pediatric populations. ..."

About the VAERS program [Web page]. Vaccine Adverse Event Reporting System. http://vaers.hhs.gov/about/index. Accessed March 28, 2014.

Centers for Disease Control. Vaccine excipient & media summary [online document]. Available at www.cdc.gov. Accessed April 1, 2014.

Tomljenovic L, Shaw CA. Mechanisms of aluminum adjuvant toxicity and autoimmunity in pediatric populations. *Lupus.* 2012;21:223–230. Available at http://aavp.es/LT&Shaw.pdf. Accessed March 19, 2014.

### Autoimmune Diseases and HPV Vaccines

Between June 2006 and March 2012, the VAERS received 20,663 reports of adverse reactions to human papilloma virus (HPV) vaccines, including 348 life-

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threatening reactions, 581 that led to permanent disability, and 73 deaths. In their 2013 systematic review article, Lucija Tomljenovic, Jean Pierre Spinosa, and Christopher A. Shaw write, "... compared to all other vaccines given to females aged 6 to 29 years (the target group for HPV vaccines), Gardasil and Cervarix alone were associated with over 60% of all serious [adverse reactions] (including 63.8% of all deaths and 64.8% of all life-threatening reactions). Moreover, 82% cases of permanent disability in females under 30 years of age were also attributed to HPV vaccines." Case studies have linked HPV vaccination to numerous autoimmune-related conditions, including Guillain-Barré syndrome, autoimmune neurological/ophthalmic disorders, systemic lupus erythematosus, pancreatitis, vasculitis, thrombocytopenic purpura, autoimmune hepatitis, and autoimmune-related primary ovarian failure. Both HPV vaccines contain aluminum adjuvants to stimulate immune response.

Neither pre- nor postlicensure trials provide evidence that HPV vaccines prevent deaths from cervical cancer, according to the Tomljenovic systematic review. The manufacturer-sponsored trials used precancerous cervical intraepithelial neoplasia (CIN) grade 1–3 lesions as surrogates for cancer to assess efficacy. In actuality, the body's defenses resolve most CIN lesions and few become cancerous. The authors explain, "... a review of the literature from 1950-1992, showed that as much as 60% of CIN 1 lesions regressed, 30% persisted, 10% progressed to CIN 3, and only 1% progressed to invasive cancer."

Fifteen HPV strains have been associated with cervical cancer. Gardasil (Merck) and Cervarix (GlaxoSmithKline) target just two: HPV-16 and HPV-18. Although both vaccines effectively prevent HPV-16 and HPV-18-related CIN 2/3, their overall ability to prevent CIN 2/3 is very low, according to Tomljenovic et al. The vaccines provide even less benefit for black women. Among black women, precancerous lesions are most often related to HPV-33, HPV-35, HPV-58, and HPV-68, according to a 2013 Duke University study.

HPV vaccination cannot replace Pap screening. Regular Pap screening and LEEP to remove high-grade CIN 2/3 lesions are credited with lowering cervical cancer death rates to a very low rate of 1.4 to 1.7 per 100,000 women in developed countries. Unlike vaccines, Pap screening looks for actual lesions instead of targeting viruses, which may or may not eventually cause cancer.

In addition to limited efficacy, HPV vaccines may increase the risk of cancer in women who are infected with HPV-16 or HPV-18 at the time of vaccination. Tomljenovic et al. report that two Gardasil trials (FUTURE I and II) showed that "Gardasil had an observed efficacy of -33 to -44.6% in subjects who were already exposed to HPVs targeted by the vaccine." These data indicate "'the potential of Gardasil to enhance cervical disease'" (Merck's words). This information did not appear in the official publications of the FUTURE I and II trials published in *New England Journal of Medicine*, according to Tomljenovic et al.

Questions about HPV vaccine risk vs. benefit need to be addressed, because a new vaccine that targets nine HPV strains is undergoing phase 3 clinical trials, according to *Medscape Medical News*.

Mulcahy N. Vaccines do not cover most common HPV types in black women. *Medscape Medical News*. October 28, 2013. Available at www.medscape.com/viewarticle/813365. Accessed March 28, 2014.

Tomljenovic L, Spinosa JP, Shaw CA. Human papillomavirus (HPV) vaccines as an option for preventing cervical malignancies: (how) effective and safe? *Curr Pharm Des*. 2013;19:1466–1487. Available at www.researchgate.net. Accessed March 12, 2014.

### Exercise and Inflammation

Back in 2003, Danish researchers showed for the first time that interleukin-6 (IL-6), released by skeletal muscle during physical activity, lessens inflammation. They performed three experiments with eight healthy men. In the first, the men rested for 3 hours (control). In the second, the men rode bicycles for 3 hours. In the third, the men received infusions of recombinant human IL-6 while resting for 3 hours. In each of these experiments, researchers gave the men an intravenous bolus of *E. coli* lipopolysaccharide endotoxin to cause low-grade inflammation at 2.5 hours into the experiment. As expected, plasma TNF-alpha levels rose significantly – "a 2- to 3-fold increase" (Mathur &

Pedersen) – during the control experiment. "In contrast, during [exercise] which resulted in elevated IL-6 and rhIL-6 infusion at physiological concentrations," write Starkie et al., "the endotoxin-induced increase in TNF-alpha was totally attenuated." Further research proved that contracting muscle produces and releases IL-6.

Since that time, research has shown that IL-6 levels can increase up to 100-fold during exercise that does not incur muscle damage. "The magnitude by which plasma IL-6 increases is related to exercise duration, intensity, and muscle mass involved in the mechanical work," according to a 2008 review article by Neha Mathur and Bente Klarlund Pedersen. In addition to inhibiting TNF-α (an inflammatory cytokine that rises during infection and contributes to metabolic syndrome and insulin resistance), IL-6 increases lipolysis and fat oxidation. After working muscles release IL-6, other anti-inflammatory cytokines (IL-1ra and IL-10) also rise.

Increased levels of anti-inflammatory cytokines during physical activity may explain why exercise has shown consistent benefits in the prevention of inflammation-associated disease such as cardiovascular illness, type 2 diabetes, and some cancers.

Mathur N, Pedersen BK. Exercise as a mean to control low-grade systemic inflammation. *Mediators Inflamm.* 2008. Available at www.research.net. Accessed March 25, 2014.

Starkie R, Ostrowski SR, Jauffred S, Febbraio M, Pederson BK. Exercise and IL-6 infusion inhibit endotoxin-induced TNF-alpha production in humans. *FASEB J.* May 2003;17(8):884–886. Available at www.ncbi.nlm.nih.gov/pubmed/12626436. Accessed April 12, 2014.

**Glyphosate and Gluten Sensitivity**

About seven years ago, Stephanie Seneff at MIT's Computer Science and Artificial Intelligence Laboratory (Cambridge, Massachusetts) began applying her expertise in natural language processing (NLP) to the field of biology. NLP is a dialog system that helps people interact with, interpret, and organize information found on the Internet, including research literature. Most recently, Seneff and colleague Anthony Samsel used NLP to investigate glyphosate, the active ingredient in the herbicide Roundup, and a possible causal relationship to celiac sprue.

In their article "Glyphosate, Pathways to Modern Diseases II: Celiac Sprue and Gluten Intolerance," Samsel and Seneff present numerous correlations between celiac disease and glyphosate's known effects. People with celiac disease have more pathogenic microbes and fewer beneficial ones in their GI tracts. Monsanto has patented glyphosate as an antimicrobial. Animal studies show that it kills beneficial GI bacteria, which leads to pathogen overgrowth. People with celiac disease exhibit deficiencies in iron, molybdenum, and selenium. Glyphosate is a powerful chelator that binds to soil minerals and thereby inhibits plants' access to nutrients. People with celiac disease have impaired serotonin signaling. The herbicide disrupts plants' and bacteria's shikimate pathway that produces essential amino acids such as tryptophan (precursor for serotonin) and phenylalanine. People with celiac disease show higher levels of toxic metabolites such as p-Cresol and indole-3-acetic acid. Glyphosate inhibits cytochrome P450 enzymes that break down toxins. In addition to these correlations, Samsel and Seneff also offer several possible explanations for glyphosate's role in the development of autoantibodies to tissue transglutaminase, the main diagnostic feature of celiac disease.

Glyphosate is the most widely used herbicide in the world, primarily because of perceived safety to humans and its comparative low cost. In addition to using Roundup for weed control in fields of genetically modified soy, canola, sugar beets, and corn, conventional farmers are applying the herbicide to wheat, sugar cane, barley, potatoes, and other non-GMO food crops just before harvest to "dry and ripen" them. This practice lessens the labor of harvest but also increases the amount of glyphosate in the food.

"Glyphosate residues can remain stable in foods for a year or more, even if the foods are frozen, dried or processed," say Monika Kruger and colleagues in their 2014 research article "Detection of Glyphosate Residues in Animals and Humans." Glyphosate accumulates in plants' leaves, grain, fruit, stalks, and roots. Neither washing nor cooking removes the pesticide. The research team looked for glyphosate residues in the urine and organs of dairy cows as well as the urine of wild hares, domestic rabbits, and humans, using ELISA and gas chromatography-mass spectroscopy. They found that people who eat conventionally grown food excreted significantly higher levels of glyphosate ($p < 0.0002$) than those who ate primarily organically grown food. Moreover, glyphosate urine residues were significantly higher in chronically ill people ($p = 0.03$), compared with healthy people.

Whether or not glyphosate causes celiac disease, Samsel and Seneff raise important concerns about the health effects of glyphosate use.

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# Shorts


Krüger M, Schledorn P, Schrödl W, Hoppe H-W, Lutz W, Shehata AA. Detection of glyphosate residues in animals and humans. *J Environ Anal Toxicol.* 2014:4(2). Available at http://omicsonline.org/open-access/detection-of-glyphosate-residues-in-animals-and-humans-2162-0525.1000210.pdf. Accessed March 10, 2014.

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Rappoport J. Email from author of study on Roundup/gluten intolerance [blog post]. Jon Rappoport's Blog. February 24, 2014. http://jonrappoport.wordpress.com/2014/02/24/email-from-author-of-study-on-roundupgluten-intolerance. Accessed March 10, 2014.

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## Microbiome Ecology

For over a century, medicine has focused on pathogens – microorganisms that provoke defensive immune reactions – little realizing the importance of other commensal microorganisms living on the skin and in the gut and respiratory tract. "Commensals are no longer considered as passive bystanders or transient passengers, but increasingly as active and essential participants in the development and maintenance of barrier function and immunological tolerance," say Tari Haahtela and colleagues. "They are also involved in the programming of many aspects of T cell differentiation in co-operation with the host genome." Instead of inciting a defensive reaction, these microorganisms – including bacteria, fungi, and possibly viruses, and microscopic protozoans – interact with immune cells and activate the immune system's regulatory network.

Maintaining healthy, balanced immune and inflammatory responses depends in part on having a wide diversity of commensal organisms. Researchers identified over 1000 different bacterial species living in the guts of 124 European participants (Qin et al. 2010). Each European had a different combination of at least 160 different bacterial species. Early environmental exposures and diet determine gut flora. As we mature, the microorganisms establish a stable community. Antibiotics and changes in diet, however, can disrupt that stability.

Commensal organisms interact with each other as well as with our cells, adapting to the environment by performing different functions. "Even in cases where two communities harbor the same bacterial strain, the functions the bacteria carry out in individual settings may differ greatly, depending on the presence or absence of other community members," write Michael A. Fischbach and Justin L. Sonnenburg. In addition, microorganisms affect the host's terrain, creating positive feedback loops. For example, Firmicutes species produce butyrate, which increases the host's mucus production. Other species use mucin to produce succinate and acetate, which Firmicutes uses to produce butyrate – continuing the cycle.

Researchers are just beginning to investigate the intricate ecology of our commensal partners. Perhaps we can find a way to work with these tiny organisms to benefit our mutual health.


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Haahtela T, Holgate S, Pawankar R, et al. The biodiversity hypothesis and allergic disease: world allergy organization position statement. *World Allergy Org J.* 2013;6(3). Available at www.biomedcentral.com/content/pdf/1939-4551-6-3.pdf. Accessed February 14, 2014.

Qin J et al. A human gut microbial gene catalogue established by metagenomic sequencing. *Nature.* 2010;464:59–66.


## Non-Celiac Wheat Sensitivity

Non-celiac wheat sensitivity affected one-third of irritable bowel patients in a 2012 double-blind, placebo-controlled Italian study, led by Antonio Carroccio, MD. While celiac disease affects an estimated 1 in 100 people in Western nations, considerably more avoid eating wheat because they experience bloating, abdominal pain, and/or changes in stool consistency. A lack of clear serological or histopathologic markers for wheat or gluten sensitivity has caused the medical community to question its existence, but the Italian researchers found evidence that it is a "distinct clinical condition."

Carroccio and colleagues conducted a retrospective study using clinical charts from 920 patients diagnosed with irritable bowel syndrome (IBS) from January 2001 to June 2011. All patients had undergone an elimination diet and double-blind, placebo-controlled challenge at an outpatient clinical center. During the challenge period, patients were given capsules containing either wheat or xylose for 2 consecutive weeks. After a washout period of 1 week, patients took the other capsule for two weeks. Since wheat was the test substance, it is possible that compounds other than gluten produced symptoms. These patients were also challenged with cow's-milk proteins. Symptoms resolved (VAS score $< 10$) during the elimination diet and initial symptoms reappeared during the wheat challenge (VAS score $> 30$) in 276 of the 920 patients with diagnosed IBS. The researchers compared the charts of the wheat-sensitive group with charts belonging to 100 patients with celiac disease and 50 non-wheat-sensitive IBS patients.

The researchers found two subgroups of people with wheat sensitivity (WS). The larger group ($n = 206$) reacted to cow's-milk proteins and other foods as well as wheat. Subjects in this group often had a family or personal history of food allergies. The remaining 70 patients reacted only to wheat. In both subgroups, reaction time to the challenge varied greatly: between 2 hours and 5 days (median 2.5 days) for the multiple-food-sensitive group and 3 hours to 9 days (median 3 days) for the wheat-only group. "The main histological characteristic of WS patients was eosinophil infiltration of the duodenal and colon mucosa," say Carroccio et al.

Half of the wheat-sensitive patients reported wheat intolerance before being tested compared with 22% of those with celiac disease. The researchers say, "... the very high frequency of self-reported wheat intolerance, which we observed in our patients, should induce clinicians to pay full attention to patient suggestions."


Carroccio A, Mansueto P, Iacono G, et al. Non-celiac wheat sensitivity diagnosed by double-blind placebo-controlled challenge: exploring a new clinical entity. *Am J Gastroenterol.* December 2012; 107:1898–1906. Available at www.bmlab.no. Accessed March 18, 2014.


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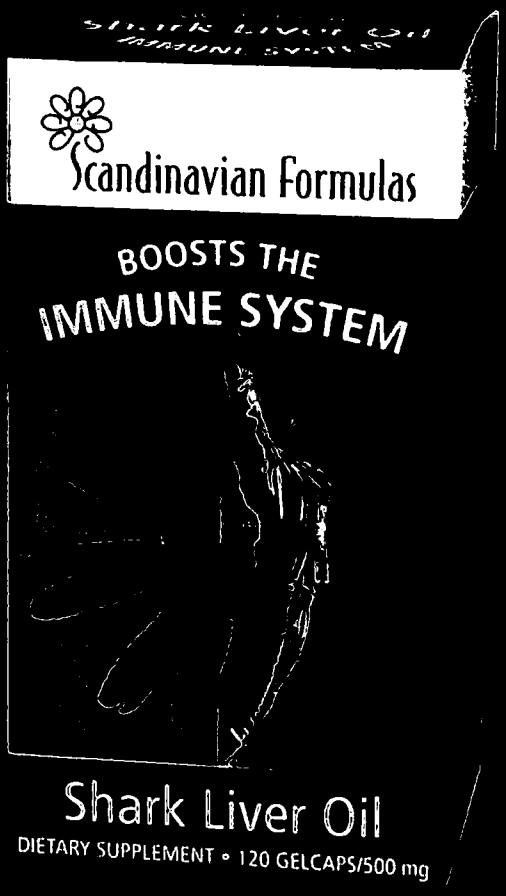


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# Literature Review & Commentary

by Alan R. Gaby, MD
drgaby@earthlink.net

### Green Tea Extract for Ulcerative Colitis

Twenty patients with mild-to-moderate ulcerative colitis who had failed to respond adequately to 5-aminosalicylic acid and/or azathioprine were randomly assigned in a 4:1 ratio to receive, in double-blind fashion, adjunctive treatment with Polyphenon E (a green tea extract) or placebo for 8 weeks. Polyphenon E was administered in 2 divided doses per day, and provided either 400 or 800 mg per day of (-)-epigallocatechin-3-gallate (EGCG). Patients were considered responders if they experienced a decrease in their ulcerative colitis disease activity index (UCDAI) of 3 or more points at week 8, or if their final score was less than 2. Clinical remission was defined as a UCDAI score of less than 2, with an endoscopic subscore of 1 or less. After 8 weeks, the response rate was 66.7% (10 of 15) in the Polyphenon E group and 0% (0 of 4) in the placebo group ($p = 0.03$). The remission rate was 53.3% in the Polyphenon E group and 0% (0 of 4) in the placebo group ($p = 0.10$). Polyphenon E treatment resulted in only minor side effects, mainly heartburn.

**Comment**: EGCG, the major polyphenol present in green tea, has powerful anti-inflammatory effects. EGCG is poorly absorbed from the gastrointestinal tract, but high concentrations are available to the colonic mucosa after oral administration. The results of the present study indicate that Polyphenon E was beneficial in the treatment of mild-to-moderate ulcerative colitis. There are several case reports of liver injury occurring in people consuming large amounts of green tea extracts as a component of weight-loss products. While green tea extract was not proved to be the cause of the liver damage, it would be prudent to monitor liver function in patients receiving high doses of green tea extracts.

Dryden GW et al. A pilot study to evaluate the safety and efficacy of an oral dose of (-)-epigallocatechin-3-gallate-rich Polyphenon E in patients with mild to moderate ulcerative colitis. *Inflamm Bowel Dis*. 2013;19:1904–1912.

### Thiamine for Fatigue in Inflammatory Bowel Disease

Eight patients with ulcerative colitis in remission and 4 patients with Crohn's disease in a quiescent phase who suffered from fatigue were treated with thiamine. The initial dose was 600 mg per day. If the response was not satisfactory, the dosage was increased by 300 mg per day every 2 days, to a maximum of 1500 mg per day for patients weighing 90 kg, and a lower dose for those weighing less than 90 kg. Prior to treatment, the levels of thiamine and thiamine pyrophosphate in the blood were normal. Ten of the 12 patients had a complete resolution of fatigue and the other 2 patients had marked improvement. One patient experienced mild tachycardia with 1200 mg per day of thiamine, which resolved when the dose was reduced to 900 mg per day. The authors have found that high doses of thiamine, such as 1200 to 1500 mg per day, can cause sleep difficulties if administered at night. Therefore, they recommend that the last dose be taken before 5 p.m.

**Comment**: Fatigue is a common symptom in patients with ulcerative colitis. Potential nutritional causes of fatigue in ulcerative colitis include food allergy and deficiencies of nutrients such as magnesium, iron, and vitamin B12. When these factors have been ruled out, the results of the present study suggest that high-dose thiamine may be considered. The beneficial effect of thiamine was not due to the correction of thiamine deficiency, because the patients were not deficient prior to supplementation. While the mechanism of action is not known, thiamine might work by stimulating the synthesis of one or more thiamine-dependent enzymes (a phenomenon known as enzyme induction, also referred to as an epigenetic effect). High-dose thiamine appears to be relatively safe, but it may increase the requirement for magnesium, and should therefore be accompanied by

magnesium supplementation. In addition, the long-term safety of high-dose thiamine has not been well studied, and the potential for creating imbalances with other B vitamins should be considered.

Costantini A, Pala MI. Thiamine and fatigue in inflammatory bowel diseases: an open-label pilot study. *J Altern Complement Med.* 2013;19:704–708.

### Fructose and Lactose Cause Gastrointestinal Symptoms

Of 1372 patients with functional gastrointestinal disorders, 60% developed symptoms after ingestion of 35 g of fructose in 300 ml of water, 51% developed symptoms after ingestion of 50 g of lactose in 300 ml of water, and 33% were intolerant to both of these sugars. Breath testing (looking for increased concentrations of hydrogen or methane) revealed that 45% malabsorbed fructose, 32% malabsorbed lactose, and 16% malabsorbed both sugars. Gastrointestinal symptoms correlated with symptoms evoked during testing but did not correlate with malabsorption. The patients were prescribed a diet with reduced amounts of saccharides and polyols (such as sorbitol), adjusted according to individual tolerance. Adequate symptom relief was achieved after 6 to 8 weeks in more than 80% of intolerant patients, irrespective of malabsorption.

**Comment**: Food allergy has been found to be a common cause of irritable bowel syndrome and other functional bowel disorders. However, non-allergy-mediated reactions to food components such as fructose and lactose can also cause symptoms in many such patients. Other food components that may trigger gastrointestinal symptoms include sucrose, sorbitol, and fructo-oligosaccharides (also called fructans). These substances collectively are referred to as fermentable oligosaccharides, disaccharides, monosaccharides, and polyols (FODMAPs). Several studies published over the past few years have shown that low-FODMAPs diets are frequently effective for irritable bowel syndrome. Wheat contains a relatively large amount of fructans, and some people who believe they are sensitive to gluten may actually be sensitive to the fructans in wheat (see below).

Wilder-Smith CH et al. Fructose and lactose intolerance and malabsorption testing: the relationship with symptoms in functional gastrointestinal disorders. *Aliment Pharmacol Ther.* 2013;37:1074–1083.

### Is It Gluten Sensitivity or FODMAPs Sensitivity?

Thirty-seven patients (aged 24–61 years) with self-diagnosed gluten sensitivity and irritable bowel syndrome, whose symptoms had been controlled on a gluten-free diet for at least 6 weeks, were prescribed a gluten-free diet low in FODMAPs (fermentable oligosaccharides, disaccharides, monosaccharides, and polyols) for 2 weeks and were then randomly assigned to consume 16 g per day of whole wheat gluten, 2 g per day of whole wheat gluten, or 14 g per day of whey protein (control diet) for 1 week. After a washout period of at least 2 weeks, the subjects consumed each of the other 2 diets, with a washout period between each diet period. Celiac disease had been ruled out in all patients prior to the study, by HLA testing and/or duodenal biopsy. In all patients, gastrointestinal symptoms consistently and significantly improved during reduced FODMAPs intake, but significantly worsened to a similar degree when their diets included gluten or whey protein. Gluten-specific effects were observed in only 8% of participants.

**Comment**: In this study of patients who believed that they were sensitive to gluten, no clear evidence was found of a specific or dose-dependent adverse effect of gluten. The increase in symptoms that followed each of the specific food challenges could have been due to a nocebo effect (i.e., the opposite of a placebo effect; the development of symptoms as a result of the expectation of an adverse effect). It is also possible that some patients were sensitive both to gluten and to whey protein. However, the results of the present study support previous observations that at least some of the gastrointestinal symptoms which patients attribute to gluten are in fact due to intolerance to the oligosaccharides present in gluten-containing foods. Some patients with presumed gluten-induced gastrointestinal symptoms may fare better on a low-FODMAPs diet than on a gluten-free diet.

Biesiekierski JR et al. No effects of gluten in patients with self-reported non-celiac gluten sensitivity after dietary reduction of fermentable, poorly absorbed, short-chain carbohydrates. *Gastroenterology.* 2013;145:320-328.e1-3.

### Food Allergy and Anal Fissures

One hundred sixty-one patients (aged 18–54 years) with chronic anal fissures were randomly assigned to consume a "true-elimination diet" (no wheat, milk, egg, tomato, or chocolate, chosen on the basis of the authors' previous experience with chronic constipation) or a "sham-elimination diet" (no rice, potato, lamb, beans, or peas) for 8 weeks. Both groups received topical nifedipine and lidocaine. Sixty patients who were cured with the "true-elimination diet" underwent double-blind, placebo-controlled challenges in which capsules containing cow's milk protein or wheat flour were compared with placebo (xylose). At the end of the study, 69% of the "true-diet group" and 45% of the "sham-diet group" showed complete healing of anal fissures ($p < 0.0002$). Thirteen of the 60 patients had a recurrence of anal fissures during the 2-week cow's milk challenge and 7 patients had a recurrence during the wheat challenge. At the end of the challenge, anal sphincter resting pressure increased significantly compared with the baseline values in the patients who experienced a recurrence. The patients who reacted to the challenges had a significantly higher number of eosinophils in the lamina propria and intraepithelial lymphocytes than those who did not react to the challenges.

Background: Patients with chronic constipation due to food hypersensitivity have elevated anal sphincter resting pressure, which could potentially contribute to the development of anal fissures. The results of the present study suggest that food allergy is an important contributing factor in at least 20% of patients with chronic anal fissures.

Carroccio A et al. Oligo-antigenic diet in the treatment of chronic anal fissures. Evidence for a relationship between food hypersensitivity and anal fissures. *Am J Gastroenterol.* 2013;108:825–832.

### Vitamin D for Lupus

Two hundred sixty-seven patients (mean age, 39 years) with systemic lupus erythematosus (SLE) were randomly assigned to receive, in double-blind fashion, in a 2:1 ratio, 2000 IU per day of vitamin D or placebo for 12 months.

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The mean serum 25-hydroxyvitamin D (25[OH]D) level at baseline was 19.8 ng/ml in the patients, as compared with 28.7 ng/ml in age-matched healthy controls. Sixty-nine percent of the patients had a 25(OH)D level less than 30 ng/ml and 33% had a level less than 10 ng/ml. Lower 25(OH)D levels correlated significantly with higher SLE disease activity. The mean erythrocyte sedimentation rate declined to a significantly greater extent in the group receiving vitamin D than in the placebo group. Among patients with baseline 25(OH)D levels less than 30 ng/ml, the mean SLE Disease Activity Index decreased (improved) significantly by 37% in the vitamin D group and decreased nonsignificantly by 6% in the placebo group. It was not stated whether the difference in the change between groups was statistically significant. Data on disease activity were not presented for patients with baseline 25(OH)D levels above 30 ng/ml. The proportion of patients who had a mild-to-moderate disease flare during the study was significantly lower in the vitamin D group than in the placebo group (10% vs. 24%; $p < 0.005$). Two percent of patients receiving vitamin D developed hypercalcemia and 2% developed hypercalciuria; these side effects were not seen in the placebo group.

**Comment**: In this study, lower serum 25(OH)D levels were associated with higher disease activity. The clinical significance of that finding is uncertain, because 25(OH)D levels decline in response to inflammation, and low 25(OH)D levels in the context of inflammatory diseases such as SLE may not indicate vitamin D deficiency. However, vitamin D supplementation did prevent disease flares and appeared to reduce disease activity in patients with lower baseline 25(OH)D levels, indicating that vitamin D supplementation is beneficial for at least a subset of SLE patients. While the dosage of vitamin D used in this study (2000 IU per day) is considered safe for the general healthy population, a few patients developed hypercalcemia or hypercalciuria during the study. Therefore, serum and urinary calcium levels should be monitored periodically in SLE patients who are being treated with vitamin D.

Abou-Raya A et al. The effect of vitamin D supplementation on inflammatory and hemostatic markers and disease activity in patients with systemic lupus erythematosus: a randomized placebo-controlled trial. *J Rheumatol.* 2013;40:265–272.

### Fatigue and Depression in Multiple Sclerosis: Is It the Vitamin D or the Sunshine?

One hundred ninety-eight patients with multiple sclerosis were followed prospectively for an average of 2.3 years. Personal reported sun exposure was inversely associated with depression scores ($p = 0.001$) and fatigue scores ($p < 0.03$), and this association remained significant after adjustment for serum 25-hydroxyvitamin D levels. Only high serum levels of 25-hydroxyvitamin D (greater than 80 nmol/L) were inversely associated with depression scores ($p < 0.02$), and this association was no longer significant ($p = 0.11$) after adjustment for reported sun exposure.

**Comment**: It has been postulated that vitamin D deficiency plays a role in the pathogenesis of multiple sclerosis, because the incidence of the disease is lower near the equator (where sunshine is abundant) than in regions far from the equator. However, sun exposure has effects on the body other than promoting vitamin D synthesis. One such effect is to stimulate the skin to synthesize corticotropin-releasing hormone, a hypothalamic hormone that has immunomodulatory activity. In addition, exposure of the retina to ultraviolet irradiation may stimulate the pineal-hypothalamic-pituitary axis, which might exert various effects on the neuroendocrine system. In the present study, relief from depression and fatigue correlated with sun exposure, but correlated only weakly with vitamin D status. Although observational studies do not prove causation, these findings are consistent with the possibility that the beneficial effect of sunlight on fatigue and depression in multiple sclerosis patients is mediated by something other than vitamin D.

Knippenberg S et al. Higher levels of reported sun exposure, and not vitamin D status, are associated with less depressive symptoms and fatigue in multiple sclerosis. *Acta Neurol Scand.* 2014;129:123–131.

### Does High-Dose Strontium Cause Heart Disease?

The Pharmacovigilance Risk Assessment Committee of the European Medicines Agency reviewed randomized controlled trials of strontium ranelate and concluded that there is an increased risk of cardiovascular disease in patients treated with this compound. Strontium ranelate is now considered to be contraindicated in patients with a history of cardiovascular disease (i.e., ischemic heart disease, peripheral artery disease, and/or cerebrovascular disease) and in those with uncontrolled hypertension. As a precaution, it is recommended that patients be evaluated for cardiovascular disease before starting treatment with strontium ranelate, and at regular intervals during treatment.

**Comment**: Strontium ranelate has been shown in randomized controlled trials to increase bone mineral density and to prevent fractures, and it is an approved drug in Europe for the treatment of osteoporosis. In contrast to the findings from randomized controlled trials, observational studies have found that current or past use of strontium ranelate was not associated with a significant increase in risk of cardiovascular events. However, the observational studies may be confounded by selection bias (such as the "healthy cohort effect"), because people who choose to take strontium may differ in various ways from people who do not take strontium. Strontium ranelate is not available in the US, but other strontium preparations are (such as strontium citrate and strontium chloride). It is not known whether strontium compounds other than strontium ranelate also increase the risk of cardiovascular disease.

The dose of strontium used in osteoporosis trials (usually 680 mg per day) is approximately 200 times the amount present naturally in food. There is no evidence that supplementing with "nutritional doses" of strontium (such as 2 to 6 mg per day) is harmful, but there have been no clinical trials of low-dose strontium for osteoporosis prevention.

Donneau AF, Reginster JY. Cardiovascular safety of strontium ranelate: real-life assessment in clinical practice. *Osteoporos Int.* 2014;25:397–398.

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# F.A.C.T. – Just the Facts

**by Dr. Garry F. Gordon, MD, DO, MD(H)**
**Gordon Research Institute**

## Autoimmunity and Toxicity: Healing from Chronic Infections and Inflammation

Environmental toxins and infections are the leading cause of autoimmune illnesses. Whether it is an allergen, toxin, infection, or even certain food, the constant barrage eventually overwhelms the immune system, and it can no longer distinguish between the offender and the body's tissues and organs. The systemic, chronic inflammation that occurs because of this faulty immune response leads the body to attack itself. This "silent" inflammation is underlying many diseases, including the most commonly known autoimmune disorders such as rheumatoid arthritis, Crohn's disease, Guillain-Barré syndrome, lupus, multiple sclerosis, and psoriasis.

Inflammation is due to many things, but clearly a major factor is the total burden of pathogens that we carry. I believe that we all have some chronic infection present, including candida, chlamydia, Epstein-Barr, herpes, SB-40, and so on. No one today is free of these infections. This is really just the tip of the iceberg, because if you do not have candida or cytomegalovirus (CMV) or Coxsackie virus or chlamydia or Lyme disease, odds are that you will acquire something else such as a parasite. These undiagnosed infections are causing or contributing to the development of the most chronic and widespread diseases suffered from today, including autism, Alzheimer's, arthritis, and even cancer. CMV is reported to be present in almost everyone tested today and is linked to heart disease and hypertension. Chlamydia (*C. pneumoniae*) has also been linked to heart disease, arterial plaque, asthma, Alzheimer's disease, and shortened lifespan.

Conventional medicine's overuse of prescription antibiotics, other drugs, and vaccines only exacerbates the problem. Prescription antibiotics are indiscriminate. They kill all bacteria in the body, including the ones that we need. Many women find that after taking antibiotics, they get vaginal yeast infections (because their normal bacterial balance has been lost). Antibiotics bring on fungal and yeast infections, and thus will eventually be seen as a major cause of cancer, since more and more oncologists are seeing yeast and fungal infections as an integral part of cancer and its cause. The *Journal of the American Medical Association* has reported a study on 10,000 women in which those who took over 500 days of antibiotics in a 17-year period (dubbed 25-plus doses) had twice the risk of breast cancer as those who took none at all. Even women taking just one had a statistical risk increase to 1.5 times. Studies in the recent past have shown an association between the use of antibiotics and higher incidence of diseases such as breast cancer, inflammatory bowel disorder, and Crohn's disease, and children's developing conditions such as hay fever, asthma, autism, and other neurological diseases. The widespread and overuse of vaccines has also been proved to cause serious illness, and has even produced the actual disease being vaccinated against. Instead of conferring immunity, health-compromised individuals given live virus vaccinations often wind up with the virus growing in the intestine or even the spinal fluid. This reaction has been linked to the occurrence of and rise in autism by Andrew Wakefield, MD, PhD.

Antibiotics no longer work for most infections and wind up killing useful organisms that we need to remain healthy. The huge levels of antibiotics fed to animals raised for food has led to over 100,000 people's dying each year of infections that no "drugs" will handle. This is all known to those who research infections and health, but misdiagnosis is common and entirely ignored by 99% of all doctors, since there is not a single magic prescription they can write that will eliminate these infections – infections that are becoming increasingly aggressive due to antibiotic resistance and multiple viral mutations. So we need to deal with the root of the problem, recognizing that autoimmunity and any other chronic illness is a multifactorial issue. Conventional treatment is often not curative, and without alternative medical approaches, these subclinical infections

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## Just the Facts

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can be nearly impossible to heal from. It is more important to focus on total body detoxification and restoration of cellular function, so that our bodies may better handle any pathogen that it is exposed to, naturally.

So as this month's issue of the *Townsend Letter* focuses on autoimmune disorders and inflammation, here are just a few excerpts from physician members of Gordon Research Institute's F.A.C.T. group concerning those issues relating to toxicity and infection.

Q: Any recommendations or experience with treating chronically elevated EBV titers? Including experience with use of thymus extract injections or other medical and natural therapies would be appreciated. Thank you. ~C. H.

A1: Dear C. H.,
I am continually impressed at the effectiveness of gemmo-therapies when dealing with chronic viral infections. I see a lot of EBV-infected patients. Aside from drainage and cleaning up the terrain, which I'm sure you've already accomplished, I have consistent success with the plant stem cell extracts from Fagus sylvatica for EBV and Tamarix gallica for the usually coincident CMV along with Rosa canina to take care of some other commonly associated herpes family viruses (HSV-1 and 2) and/or to potentiate the actions of Fagus and Tamarix.

In general, you can mix these three in equal parts and prescribe between 30–40 ml, dosed at 5 drops 4×/day 10 minutes before food and bed, directly on the tongue and swished in the mouth before swallowing. The infections are significantly reduced in 2 to 4 weeks, especially when the remedy is formulated to be patient specific. I have tested and found the Gemmo's from Herbalgem in Belgium to be the particularly potent and they can be purchased from Bio Lonreco in Montreal, Canada at (514) 631-0006.

If EBV is by far the greater problem relative to CMV or other herpes viruses then the formula can be shifted to reflect this (i.e. more Fagus for greater EBV, say a 2 or even 4:1 ratio of Fagus to Tamarix and the Tamarix and Rosa in equal amounts), and your remedy will work much quicker.

One confounding factor is the need to eliminate the bacterial "homestead" of these viruses. For this I use simple botanical antimicrobials (like goldenseal in the formulation from St. Francis called EchinaSeal) or in the case of L-form microbes (cell wall deficient variants) I use one or two of the Sanukehl remedies from Sanum sold in the US by Terra Medica and in Canada by Biomed International of Vancouver. I often find the Sanukehl for Propionibacterium acne or Salmonella or Streptococcus to be effective here, but patient specific testing will tell. If there is significant pathogenic bacteria involved, then I find a need to add more drainage remedies for lymph, liver, kidney in order not to stall the progress. ~K. S.

A2: Isoprinosine is a potent antiviral and immunomodulator.
Dosing of isoprinosine:
First week (Monday–Friday): 2 times a day 0.5 tablet (with or without meals). Take nothing in the weekend.

Second week: 2 times a day 1 tablet. Take nothing in the weekend.

Third week: take nothing.

Fourth week: 2 times a day 1 tablet. Nothing in the weekend.

Fifth week: 2 times a day 2 tablets. Nothing in the weekend.

Sixth week: take nothing.

Seventh week: 2 times a day 1 tablet. Nothing in the weekend.

Eighth week: 2 times a day 3 tablets. Nothing in the weekend.

Ninth week: take nothing.

Repeat the last 3 weeks several times.

In the beginning of the treatment flulike symptoms or worsening of symptoms in general may occur. These symptoms often disappear in the course of the treatment. In the case of a too strong reaction in the first week of treatment lower the dose to half a tablet once daily and increase the dose to half a tablet twice daily in the second week. Take nothing in the third week and continue the treatment with the treatment schedule above.

If reactions in the first three weeks of the treatment are strong repeat the first three weeks. If there are no reactions

at all or negligible reactions in the first two weeks, then skip weeks 3 and 4 and continue with week 5. If there is no reaction in this week, continue with week 8. After this week take 3 times 1 tablet in the uneven weeks and 3 times 2 tablets in the even weeks. Other treatment options: liposomal vitamin C, Crotalus Injeel (homeopathic snake venom), AHCC. Best regards. ~P. V. M.

A3: Dear Dr. C. H.,
First question. Do you want to treat a lab number or a patient? What symptoms and history does this patient have? Nutritional status, toxins, stress levels? That said, I got into ozone therapy in 1986. I immediately started seeing children with acute mono and older folks with high EBV titers and fatigue symptoms. The kids responded about as fast as strep did to penicillin in the old days. The older folks took a few extra weeks. UBI probably does the same. ~R. R.

Q: I have a patient who is autoimmune: Hashimoto's, CFS with hypoadrenia w/pituitary involvement, menopausal sx, osteoporosis, and a mold allergy. ... Best ways to open detox pathways so the body can release toxin? She recently discovered that the home in which she was living had black mold in the duct system. The mold has been removed. What can I do to help her? I appreciate your thoughts. ~ L. F.

A1: This is not a toxin issue! It is a chronic malnutrition issue. Hashimoto's is related to celiac disease, so get her off of gluten. CFS is a chronic nutrient deficiency disease, so she needs to be on all 91 essential nutrients in colloidal liquid form as per her body weight immediately. The adrenal problem and the menopausal symptoms are both related to a cholesterol deficiency – so have her eat 6 eggs a day, butter and high fat foods. The osteoporosis of course is a calcium and mineral deficiency. I prefer to give glucosamine and chondroitin in addition to my calcium & mineral program, as it quickens the bone-building. *Do not detox* this person – she is extremely nutrient deficient, and any detox program will only increase her nutrient needs. To speed up the autoimmune resolution, I would also advise eliminating the following foods: well done meat (heterocyclic amines), fried foods (acrylamide), any oil in a bottle, even olive oil (oxidative stress), meats containing nitrates (nitrosamine formation after heating), and the skins of baked potatoes, yams and sweet potatoes (heterocyclic amine content). ~P. G.

A2: Dear Dr. L. F.,
1. Use a binder like chlorestrymine or Cholacol II to pull out the biotoxins.

2. Identify any foods that her immune system/body is reacting to and eliminate them, get desensitization drops.

3. Heal the gut, use the knowthecause.com diet to assist in process (lots of Brassica family foods really help the liver).

4. Address microbial imbalance; try out goldenseal and various parasitic remedies.

5. General detoxification (chlorophyll) is likely helpful.

6. Rebalance/restore cellular function with LLLT or frequency therapy Neurofield).

It may take some time, she can recover. ~J. D. V.

A3: Dr. L. F.,
There may be more to it than just the mold. Often times petrochemical solvents may be a contributing factor. Consider ordering the Environmental Pollutants panel from US Biotek. It tests for urinary excretion of common toxins found in many homes such as xylene, toluene, benzene, trimethylbenzene, styrene, phthalates and parabens. Many of these have been linked to increased auto-immune responses. ~M. S.

Q: I have a 47-year-old female patient with diagnosis of chronic auto immune hepatitis, early biliary cirrhosis, and focal bile duct damage. ... Since beginning treatment with allergy elimination, glutathione, phos choline, liver-supportive herbs, Ca D Glucorate, vitamin D, coffee enemas, and pekana drainage remedies, her symptoms have improved, as have her liver enzymes. Her doc still wants to put her on prednisone and then Immuran. Would appreciate any feedback or thoughts about this condition and its treatment. ~K. B.

A1: There will be many responses with excellent nutritional suggestions. I suggest reading Dr. Simon Yu's book called *Accidental Cures*. He gets really involved in parasites, which definitely can cause this problem. Also, I have seen this condition cured with amalgam removal and/or addressing root canals, especially in eye (canine) teeth. ~RR

A2: Dear Dr. K. B.,
You are clearly doing the right thing to help this patient ... however, in most cases an aggressive adrenal replacement program might be needed ... my experience has taught me that autoimmune diseases, although always a manifestation of either toxicity and/or infection, are also caused by adrenal exhaustion ... in most cases this will be obvious by a history of stress before the onset of the condition ... as such, patients with these diseases almost always need hydrocortisone, DHEA, pregnenolone, progesterone replacement along with other adrenal support herbs and nutrients ... this would eliminate the possible necessity for prednisone (which is just a synthetic and less efficient way to support exhausted adrenal glands). The other thing is that in order to control her infections, she should have oxidative therapy ... my choice for these conditions is a combination of ozone and UVB therapy. ~F. S.

A3: I have treated people with biliary cirrhosis using prescription and natural antifungals, antifungal diet, addressing their clinical hypothyroidism (notice I did not say laboratory based diagnosis), vitamin D, selenium, magnesium, iodine, silymarin and alpha lipoic acid. If the patient is getting better I cannot understand why her doc would still want to put her on prednisone and immuran. ~L. J.

A4: Autoimmune hepatitis is celiac disease until proven otherwise. Get off all gluten, clean out the kitchen, etc. Add ALA (lipoic acid), selenium and silymarin (with some B-complex) to heal up the liver. ~M. S.

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## Just the Facts

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Q: Autoimmune pancreatitis? I have an 18 y.o. female previously healthy that I diagnosed with cytomegalovirus hepatitis/pharyngitis ... in 2008. Recovered and well for one year. In late 2009, started with GI pain, had a cholecystectomy. Early 2010, recurrent pancreatitis. Several ERCPs showed no blockage or stones. Now having severe attacks monthly, in hospital 2 weeks each month on PIC line IV nutrition, hydrocodone, topomax and gabapentin, pancreatic enzymes and implantable thoracic spine nerve stimulator. University GI specialists say scarring in pancreas and have run out of ideas.

My questions (1) are there tests for autoimmune pancreatitis (2) could she have chronic CMV infection of pancreas (3) any ideas on further diagnosis (I plan a comprehensive digestive stool analysis) celiac workup negative. Food allergy panel not done but I am skeptical of their accuracy (4) any suggestions on treatment for this severely disabling condition.

~Daniel Blodgett, MD www.drblodgett.com
559-683-6600

A1: The issues that are presented in this case look a whole lot like a form of Crohn's disease or inflammatory bowel syndrome rather than all of the other issues that you seem to be addressing. My suggestion would be to use the amino acid program of NeuroResearch clinics to balance the serotonin and dopamine in the intestinal tract. We have just recently submitted a paper for publication in which we have reviewed a group of Crohn's disease patients who responded in a most dramatic fashion. In the paper is actually a case report which was specifically chosen because of the dramatic aspect of his recovery. Having failed to get any relief for over 4 years from any form of treatment including every one of the Crohn's medications and some research medications, the patient was placed on the neuro replete program and within 6 weeks had complete resolution of the symptoms of Crohn's disease which were present for 21 years with only minimal semi-remissions but never complete remissions. On the amino acid program the patient has had a continuous 2½ year remission and after 4 years of being totally disabled has gone back to full-time employment with essentially a full recovery from most all clinical aspects.

The issue here is that the intestinal tract and inflammatory bowel and Crohn's disease is found to have excessive amounts of serotonin in the enteroendocrine cells. The fact that there is an excessive amount of serotonin found is primary evidence that there is a deficiency in dopamine levels and this is an indication that the neurotransmitters are not being transported across the organic cation transport system appropriately to balance out the neurotransmitter function in the intestinal tract.

Crohn's disease does not just affect the small intestine that can affect multiple parts of the body and unfortunately lead the patient to have multiple surgical interventions in areas remote from the intestines that are painful. My patient in the case report had a laminectomy for back pain with negative findings. He also underwent gallbladder surgery for completely negative findings and he went on severe restrictive diets without any benefit. The only thing that worked was the balanced amino acid program when the patient was brought into therapeutic phase 3 balance between the serotonin and dopamine on the organic cation transport assay report. Then his symptoms disappeared as if magically. It was not Magic. It was neurotransmitter balance. The conditions that are being cleared up by balancing neurotransmitters using the proper balance and using proper testing, not baseline testing but only testing done when the patient is in the competitive inhibition state taking significant amounts of 5-hydroxytryptophan, L-tyrosine, L-dopa, and L-cysteine, all balanced with one another to restore the serotonin and dopamine levels appropriately. ~A. S.

A2: At 18, it should be fixable. All your ideas are good. I would also eliminate any Splenda or other sugar substitutes, as I have had pancreatitis from them. Might check iodine deficiency as well. ~A. A.

A3: Any patient that has a history of GI disturbance, hepatitis and pancreatitis should be tested (genetically) for gluten intolerance. Antibody screens (endomyseal, etc) have a >30% false negative rate. If the genetic test is positive, a *strict* gluten-free regimen is essential. ~R. L.

The F.A.C.T. group, or "Forum for Anti-aging and Chelation Therapies," originated as a way to help doctors learn about and facilitate the use of the latest alternative therapies and nutritional supplement protocols in managing their patients. Over the years, F.A.C.T. has grown to a membership of over 3000 practitioners from 14 countries around the world. F.A.C.T. membership is free to qualified practitioners, and as members, they are able to discreetly consult on and discuss cases with one another, learn about new treatments and protocols, share their success stories, and gain access to an extensive catalog of information gathered from 55 years of ongoing research, conferences, and lectures on the latest developments in natural and alternative health.

For more information about F.A.C.T. and how to apply for free membership, visit the Gordon Research Institute website at www.gordonresearch.com.

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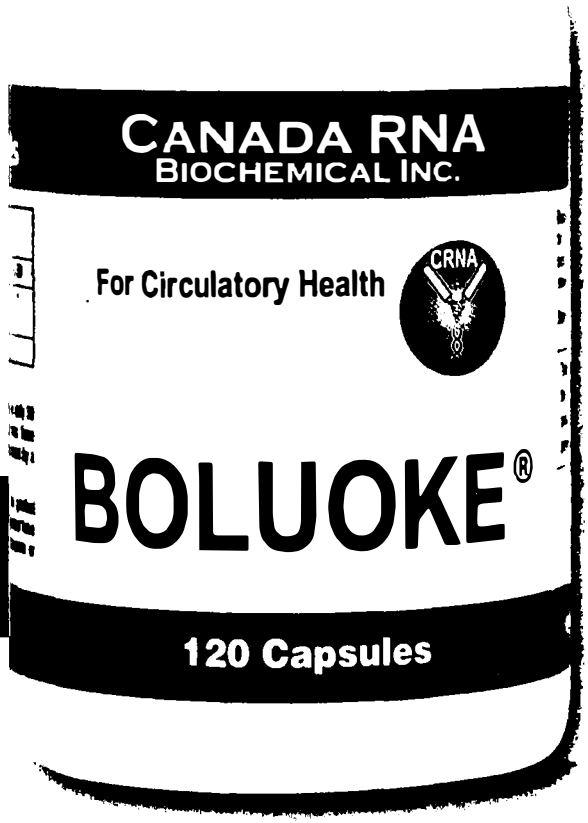


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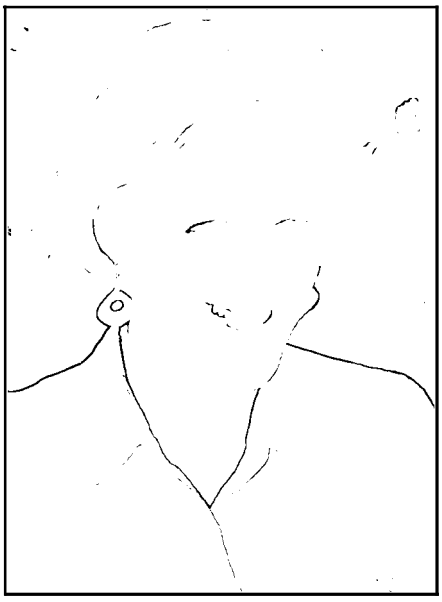

# Optimizing Metabolism

**by Ingrid Kohlstadt MD, MPH**
**www.INGRIDients.com**

## Innovations for Immune-Rebalancing Sleep

**Introduction**

Treatment of most autoimmune disorders, the theme of this month's *Townsend Letter*, involves rebalancing the immune system. Immune restoration is an offline process that occurs mostly during sleep. In some ways it's analogous to defragging a computer. So here's the *rest* of the story.

Making a bedroom a healing sanctuary can be both time-consuming and costly. The marketplace is crowded, making it difficult at times to separate hype from science. That said, the healing potential of two products stood out to me as I field-tested them. In response to this favorable impression, I spoke with experts and manufacturers, researched the products, and present them as a heal-while-you-sleep approach to autoimmune disorders.

**Aerosolized Propolis: A Welcome Addition to Apitherapy**

Many clinicians and their patients with autoimmune disorders are familiar with bee stings and the topical use of honey. Propolis is a less well-known bee product with antimicrobial and immune-regulating properties. Medicinal uses date back to ancient Mediterranean cultures.

Propolis is often called bee glue; bees make it from floral extracts, and 80 phytonutrients have been identified. Originating from the Greek, *propolis* literally means "before the city," and bees use it at the hive entrance to fortify the walls. Fresh propolis is also used to coat the cells in which the queen will lay her eggs, and light coats are applied to filled and sealed honeycomb.

Today's marketplace offers gumdrops, chewing gum, supplements, tinctures, and toothpaste that tout propolis as an active ingredient. However, I recommend that patients avail themselves of propolis therapy via the respiratory route. The linings of the respiratory tract tend to be a minimally supported part of the immune system, despite the daily front-line challenges of chronic mild dehydration, inadequate vitamin D, and poor indoor air quality.

Aerosolized propolis has additional benefits over oral supplements. Given the antimicrobial properties of propolis, one might reasonably anticipate that it could reduce mold spores. Dr. Marla Spivak is an entomologist from the University of Minnesota who has initiated research along these lines.

To most people, propolis has a pleasing aroma. Olfaction may be a route by which propolis confers its immune benefits. The scientific basis for aerosolizing phytonutrients is well summarized in *The Sweet Smell of Success,* authored by anesthesiologist James L. Geiger, MD. I highlight that frankincense, orange, lemongrass, melaleuca, oregano, and thyme are used in aromatherapy for the treatment of autoimmune conditions.

As a practical matter, aerosolized propolis may reach more patients. For example, aerosolizing propolis:

- makes it easier to use for young children;
- minimizes potential effects on the gastrointestinal absorption of medications;
- potentially expands acceptability to patients adhering to a vegan diet who might not be willing to ingest products derived from bees;
- allows use in a clinical setting both for demonstration purposes and treatment.

More information on propolis diffusers, the devices that aerosolize propolis, is available on BeeHealthyFarms.com. The following points may help guide product selection:

- The L1 module propolis diffuser simply heats propolis and is probably sufficient for bedside use during sleep.
- The cartridges holding propolis were formerly made of aluminum and are now manufactured in glass.

- Sometimes the word *capsule* is used to refer to the diffuser cartridges. Health-care providers may consider refraining from using *capsule,* since in American English "capsule" is often understood as something to ingest.
- The organic propolis cartridges are labeled BIO, the European term for organic beekeeping.
- To maximize the benefit, use the propolis diffuser at bedtime and do not run a HEPA filter or open the window while using the propolis vaporizer. The vaporizer is most effectively used after the room is filtered or aired out.

**A Mattress Beyond What I Thought Possible**

Extending the age-old tradition of storing money under the mattress for safekeeping, I decided to invest money in the mattress. I was favorably impressed with my new-to-the-marketplace mattress.

*Search Terms*

My new mattress absolutely needed to be free of chemical flame retardants. Fully restorative sleep would not be possible if I were lying on endocrine-disrupting chemicals transported to the mattress factory in hazmat trucks. Additionally, I wanted the mattress to be made of natural materials and fibers where possible. As a matter of personal preference, I was looking for a very firm mattress without inner springs. Living in an historic home with a spiral staircase also complicated replacing a larger mattress.

*Results*

One company's mission statement addressed my overarching flame-retardant-free criteria, and its mattresses are made with natural latex, organic cotton, and organic wool. The mattress's latex layers, up to four, have variable firmness. These allow individuals to choose from a wide range of combinations between very soft and very firm.

*Surprise*

FedEx delivered cube-shaped boxes bearing the company's name – no unwieldy mattress box to heft up a spiral staircase. The mattress is assembled bedside. Once the latex layers are situated, the quilted casing zips closed easily, without wrinkles. Just as easily, I can unzip the casing top to spot-clean it or air it out in sunlight. In sum, this company provided excellent "bedside manner."

The mattress can be purchased with a washable, organic allergy encasement, which I consider an immune-system bonus. The encasement should be used from the start, before allergens penetrate the mattress. That way, if the visiting cat with lymphoma occupies the bedroom uninvited, bedbugs hitchhike home from emergency room duty, or hidden moisture leads to mildew, the encasement can simply be washed. If the encasement isn't in place, it is likely that only part of the mattress would need to be replaced.

To learn more about these health advances, visit the website of this employee-owned company: SavvyRest.com.

**Prescriptions Can Save Patients Money**

Purchases for medical uses offer often-overlooked cost savings. A physician's prescription for a propolis diffuser or mattress makes the purchase sales tax exempt. The prescription may qualify the purchase as a medical deduction, as determined by the patient's income tax preparer. Additionally, the purchases are reimbursed by some insurance plans, in which case companies with outstanding service may assist in the needed prescription wording.

**Conclusions**

Efficient sleep now has a broader meaning. Sleep time offers opportunities for toxicant reduction and nutrient uptake, which have scientific merit as being supportive of the immune system.

Ingrid Kohlstadt, MD, MPH, FACN, FACPM, is the founder of INGRIDients Inc., where she has edited *Advancing Medicine with Food and Nutrients*, 2nd edition (CRC Press; 2012). On the faculty of Johns Hopkins Bloomberg School of Public Health, Dr. Kohlstadt is researching an approach to leverage nutrition more fully in disease prevention. ◆

# Herbal Coxibs: The Future of Pain Relief

## by Rajgopal Nidamboor

The foundation of conventional treatment of pain is everyone's guess – nonsteroidal anti-inflammatory drugs (NSAIDs), such as aspirin and ibuprofen. NSAIDs work by inhibiting cyclooxygenase, COX-1 and COX-2, enzymes, which cause inflammation.

Long-term use of NSAIDs, however, can produce unwanted side effects, including gastrointestinal ulceration, or bleeding, and peptic ulcers. It can also lead to kidney dysfunction or liver damage. Some conventional physicians use steroids, too, which are strong anti-inflammatory agents. They relieve pain quickly, but at a cost – they often diminish white blood cell buildup at the location of injury or infection and, in so doing, slow down the process of healing itself.

Besides, the fact remains that more and more consumers in an increasingly health-conscious world are becoming progressively aware of the harmful side effects of NSAIDs. Also, their numbers are expanding, and for good reasons, in consonance with the enormous benefits that nature's natural pharmacy – of herbs and plants – hold as truly effective and safe pain relievers, aside from managing and treating a host of other disorders, from arthritic pain, obesity, and common cold to cancer. As a matter of fact, herbs such as turmeric, ginger, green tea, holy basil, and oregano, which have been customarily used in pain treatment for centuries, work similarly to NSAIDs and COX-2 (coxib) inhibitors, but without their disagreeable side effects.

According to Jill Hoppe, a certified nutritional herbalist, "Turmeric is a really good anti-inflammatory with few side effects, and it doesn't cause the gastric ulceration that aspirin does." The evidence: in a double-blind study, arthritis patients who were given turmeric reported decreased inflammation and pain. The study's researchers, in a report published in *Carcinogenesis*, attributed this effect to curcumin – a natural COX-2 inhibitor – which is also turmeric's active constituent.

Hoppe recommends 400 mg of turmeric daily to reduce pain from swelling, or inflammation. She also says that ginger and boswellia, an ancient Ayurvedic remedy, may be taken to reduce pain from inflammation. Hoppe recommends chamomile, too, as a mild anti-inflammatory. "Turmeric and ginger," she says, "are both hot stimulating herbs. Chamomile is good for someone with mild inflammation." She says chamomile is also effective either as a poultice or tea.

It may safely be said that herbs can help relieve pain, but it is important to underline the fact that natural remedies don't characteristically relieve pain as quickly as conventional medications do. Yet it would only make sense for us to stand by them – with patience. Because they are safe and also sure to cure pain from the "root," with relatively fewer, or no, side effects, not to speak of the added "bonus" – reduced reliance on conventional drugs that don't actually go to the "source" of pain, but often generate serious, long-term side effects.

### The Basics

COX forms the body's inflammatory pathway. Aspirin and other NSAIDs obstruct COX in both its forms: COX-1 and COX-2. COX-2 produces prostaglandins, which are powerful triggers of pain and inflammation. COX-1 is essential for stomach lining protection. Interfering with its activity can lead to gastric "smarting" – from minor discomfort to bleeding ulcers. It is precisely for this reason that new COX-2 inhibitors, which block COX-2 "selectively," and not COX-1, zoomed into prominence. While it is agreed that conventional COX-2 inhibition relieves pain symptoms, some researchers admit that it has little or no effect on any underlying degenerative process.

### Nature Nurtures

Our body has two inflammatory pathways, both evolving from arachidonic acid, the inflammatory precursor. So it is obvious that blocking one pathway while sparing the other isn't good medicine. This was reason enough for pharmaceutical companies to embark on the development of drugs that blocked both branches of the inflammatory pathway. However, the pitfall for such conventional drugs has been obvious – they block both COX-1 and COX-2, and they also lead to a persistent "rebound effect" on pro-inflammatory factors.

In a study, researchers reported that after two weeks following the termination of daily aspirin or ibuprofen, the cytokine-, or nonantibody protein-stimulated production of tumor necrosis factor-alpha (TNF-alpha) and interleukin-1 beta (IL-1 beta) increased from 270% to 538% – not a happy equation. The end result was also exasperating –

expanded cartilage destruction and inflammatory progression in arthritis.

You could just as well guess another facet. For balanced selective inhibition of COX-2, combined with the inhibition of TNF-alpha and IL-1 beta, to work, it is essential to block the additional inflammatory pathway, 5-lipoxygenase (5-LOX), which produces pro-inflammatory leukotrienes. They are products of arachidonic acid metabolism; they have been implicated as mediators of inflammation.

Researchers also report that an herbal inhibitor of 5-LOX has proved to be valuable in the treatment of arthritis. The medication (5-Loxin) is derived from *Boswellia serrata*, a tree native to India, whose aromatic gum resins have been used in the ancient Ayurvedic system of medicine to treat arthritis. As a matter of fact, laboratory analysis of the gummy resin from *Boswellia serrata* shows a constituent – ß-boswellic acid – that acts as a specific inhibitor of 5-LOX. With its isolation, it is possible to derive fulsome benefits of 5-LOX inhibition without resorting to the use of large amounts of "ordinary" *Boswellia serrata* extracts for treatment.

**Beat the Twinge with Herbal COX**

The revolutionary promise of COX-2 enzymatic inhibition has been a landmark event in the annals of preventative medicine. Studies are a dime a dozen as to "how" COX-2 inhibition reduces arthritic inflammation and menstrual pain and, in so doing, "prevents" certain cancers – most notably of the colon.

You may now want to quiz why inhibition of COX-2 enzyme is so important, and why it needs to be carefully cowed down and "put on hold." A naturally occurring enzyme, COX-2 controls the creation of prostaglandins in the body. This inflammatory process is not confined just to the knee or shoulder but affects the whole body, including the brain. This, needless to say, has given scientists tangible evidence that any "no-holds-barred" activity of this enzyme could be one of the most likely causes for some forms of arthritis, Alzheimer's disease, and cancer.

Like all discoveries, the emergence of the COX-2 enzyme has given the medical world a shot in the arm. It has also given the key to the fundamental cause of some of our most devastating diseases. No wonder that conventional drug companies have jumped on to the bandwagon for newer remedies and produced pharmaceutical substances that inhibit the enzyme's dreadful effects.

The best part is, research has also had a happy dual effect. When scientists synthesized COX-2 inhibitors, a hugely beneficial, and grossly unexpected side benefit resulted from their efforts: the motivation to find herbs and plant compounds to synthetically copy, or mimic, the former. In so doing, researchers have identified several traditional herbs that contain natural and safe COX-2 inhibitors. You know their identity. So, from one, it is two today – the creation of synthetic COX-2 prescription drugs has led to the (re)discovery of herbal alternatives that are available naturally and, more important, without prescription. And, all of this with their "natural" ease of use, economics of scale, and relatively minimal, or negligible, side effects – in comparison with conventional coxibs.

**Why Herbal COX Is Better**

Conventional COX-2 inhibitors, researchers acknowledge, have a lower potential to cause stomach ulcers; but they do not rule out the possibility of ulcers in certain patients. This is not all. As a safety measure, labels for celecoxib and rofecoxib, for instance, clearly advise patients to be vigilant for heart-related concerns, gastric ulceration, and bleeding that can occur without warning and report them to their physician. In addition, conventional COX-2 inhibitors can increase blood pressure, trigger leg swelling, and alter or aggravate kidney function, like their "cousins" – NSAIDs – in certain patients. What's more, as with new drugs, previously undetermined risks may emerge down the line with conventional coxibs. It is therefore imperative that further research be done to determine if conventional coxibs are reliable enough to replace traditional NSAIDs as first-line agents.

It is, again, in situations such as these that herbal COX-2 inhibitors offer us a far better advantage – because they are less likely to cause unwanted side effects, including gastric distress.

**Favored Choice**

Herbal COX-2 is a good choice. Why? The analogy is simple. The beneficial actions of NSAIDs, to go back a bit in our narrative, are associated with the inhibition of COX-2, just as much as their adverse effects are related to the inhibition of COX-1. This is yet another important reason for the groundswell of opinion in favor of herbal COX-2 remedies: they are as effective as NSAIDs because they hamper COX-2 enzymes that mediate pain. They are also not damaging, because they do not hamper COX-1 enzymes.

**Natural COX-2 Inhibitors: The Future of Pain Relief Is Near**

It is a well-known fact that, for ages, natural remedies such as white willow bark (*Salix alba*) and myrtle (*Myrtus communis*) have provided pain relief for millions of users.

Willow bark, an ancient remedy, which is used to treat fevers and arthritic complaints, has often been referred to as "nature's aspirin." Salicin is its active ingredient. Several human studies have evaluated and confirmed the remedy's ability to rapidly relieve pain and, in the process, reduce inflammation.

Myrtle has also long been used as a stimulant, astringent, emetic, antispasmodic, expectorant, diaphoretic, and tonic. It finds reference in ancient Egyptian and Greek manuscripts.

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# Herbal Coxibs

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Evidence also supports the fact that it was prescribed by Hippocrates, father of modern medicine, to combat pain and fevers. What was not known for centuries was the exact mechanism of its action.

Salicin, studies now report, does not cause stomach distress or bleeding, as aspirin does. It lowers the body's levels of prostaglandins and has been known to have long-lasting therapeutic effects. It has a noticeable action on acute and chronic pain, including back and neck pain, and muscle and menstrual cramps. A large number of arthritis sufferers have experienced reduced swelling and inflammation – and, eventually increased mobility – in the back, knees, hips, and other joints, with its use.

In a 4-week salicin study in a group of individuals with back pain, researchers reported that a large number of patients found substantial relief. The results were replicated in a double-blind, placebo-controlled trial with a group of osteoarthritis patients.

### Dawn of a New Era

The quest for an herbal analgesic, or anti-inflammatory agent, which could provide therapeutic efficacy equivalent to that of traditional NSAIDs, but without their gastrointestinal "toxicity," spurred research efforts, as cited earlier – and from such forays statistics have also emerged. New data substantiate the need for a potentially useful drug that inhibits COX-2 without affecting COX-1. Thus emerged a truly new era – the development of natural COX-2 inhibitors.

As thorough testing of such COX-2 inhibitors began with in vivo animal studies, a model for pain was established by injecting the polysaccharide carrageenan, derived from red seaweed, into the footpads of rats to create inflammation. Following this, an oral natural COX-2 inhibitor was administered, which produced both anti-inflammatory and antianalgesic effects without gastric distress. The positive result established the benefits of herbal COX-2 inhibitors for pain and inflammatory conditions.

Picture this – the "downside" for new conventional COX-2 medications is estimated as "10 times more expensive" than traditional NSAIDs both in terms of comparison and daily dosage patterns, although, as proponents argue, they offer a certain advantage by way of their "comparatively" fewer side effects.

Think of nature's bounty and human ingenuity. Today, there is evidence that natural herbal COX-2 inhibitors obstruct the production of pain and inflammation, while treating other health conditions, in a more friendly, gentle manner – safely and cost-effectively. The real advance, therefore, is natural or herbal coxibs – wonder medicines, derived from nature – which have proved their worth for thousands of years, not to speak of availability and ease of use.

It is also obvious that COX-2 inhibition was apparent with several common and widely recognized natural products, from the time that our ancients first used them. It is a different narrative in that it was not known why natural healing benefits resulted from their use, until scientists isolated the COX enzymes responsible for such a function.

This is, of course, the opening, not the concluding, part of the story, because until each of our herbal coxibs, or natural medications, is systematically tested for scientific and beneficial activity, there won't be a standard to measure actual clinical effects.

The best part is, however, apparent – the probability at present seems to suitably support natural compounds, or herbal coxibs, serving us as nature's own original modulators of pain and therapeutic relief. This bids fair not only to the future of safe and effective pain management, but also for the holistic emergence of a veritable herbal *perestroika*, no less.

Rajgopal Nidamboor is a board-certified wellness physician, Fellow of the College of Chest Physicians, member of the Center of Applied Medicine, writer-editor, commentator, critic, columnist, and author. His published work includes hundreds of newspaper, magazine, and Web articles; four books on natural health; two coffee-table books; a handful of e-books; and a primer on therapeutics. He lives in Navi Mumbai, India. Websites: www.health-prism.com, www.upanishabd.com, and www.wordoscope.com.

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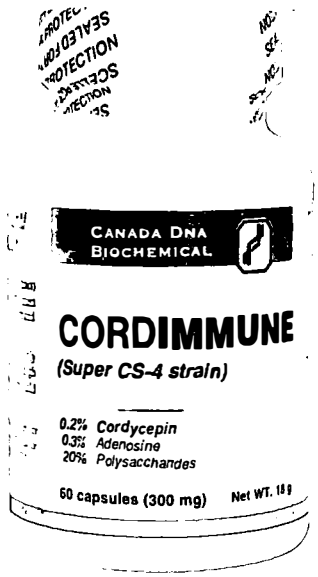


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# Bioregulatory Psychosomatic Bodywork: Generating Health via the Body's Own Communication System

by Tatyana Bosh, MD

**The greatest mistake physicians make is that they attempt to cure the body, without attempting to cure the mind; yet the mind and body are all one and should not be treated separately.**
**– Plato**

**Abstract**

Being the oldest forms of healing art, massage and bodywork were practiced throughout the human history. Although Eastern and Western manual therapeutic approaches are distinctively different, both are based on the healing capacity of human touch. The Eastern approach includes variety of disciplines; for example, reflexology, shiatsu, Ayurvedic massage, tui na, and lomilomi. Equally, there are many different types of Western "hands-on" techniques, and some of the most commonly practiced include Swedish massage, Esalen massage, aromatherapeutic massage, rhythmical biodynamic massage, and various usually Anglo-American versions of so-called holistic massage. With the birth of the New Age, we are witnessing a renaissance of therapeutic massage and bodywork techniques, where old methods are further refined, while new techniques are continually developing; for example, osteopathy, chiropractic, Rolfing, Bowen technique, Alexander technique, Feldenkrais technique, polarity massage, and craniosacral bodywork. Bioregulatory Psychosomatic Bodywork (BPSB) is one of those manual methodologies that truly deserve their therapeutic status.

All body-centered therapeutic disciplines have the same objective: to manually regulate homeostatic mechanisms. Each technique is distinctively different, and favors only a specific aspect of bioregulation. Osteopathy, for example, primarily focuses on realignment of the muscular system, lymphatic drainage massage bioregulates the lymphatic system, while shiatsu puts an emphasis on bioenergetic points and meridians. On the other hand, BPSB is a relatively new therapy, formulated by Dr. Tatyana Bosh in early 1990s, which aims to facilitate an overall psychosomatic health of an individual.

## Psychosomatic Approach

Bioregulatory Psychosomatic Bodywork (BPSB) integrates a variety of massage and bodywork techniques into one unified manual methodology. It is utilized on different therapeutic levels, from stress release and medical prevention to a profound curative level. BPSB brings together elements of physiotherapy, osteopathy, chiropractic, Rolfing, shiatsu, bioenergetics, visceral manipulation, lymphatic drainage massage, biofeedback, craniosacral therapy, and kinesiology, as well as psychosomatic medicine, EFT, psychotherapy, neurolinguistic programming, aromatherapy, color and music therapy. All those therapeutic methodologies are integrated in accordance to parameters of the psychosomatic therapeutic process, to simultaneously treat different structural and functional aspects of the body-mind. Since BPSB therapeutically addresses fluids, soft and hard tissues, and psychological and bioenergetic phenomena, it represents all integrated manual methodologies of bioregulatory medicine.

## The Medical Art of Listening and Facilitating

The body is a "communicational device." It communicates verbally and nonverbally. Verbal communication is in domain of conscious spheres, and it may therefore be either true or false. Nonverbal communication is run by the subconscious mind, and it is *not capable of lying*.

Nonverbal body language conveys its messaging in different ways, such as by means of posture, emotional expressions, spontaneous gestures, tics, and automatisms; constitutional expressions such as skin complexion or shape, size, and proportion of various bodily parts; and different symptoms and signs. It is this nonverbal communication, the true language of the body, that BPSB takes into therapeutic consideration. Dr. John Diamond, a well-known psychiatrist,

carried out thousands of tests based on psychomotor reflex, scientifically validating the concept of nonverbal communication. He developed the behavioral kinesiology technique, which practically demonstrates the wholeness of body, mind, and spirit as living integration of energy and matter.

As with any form of therapeutic bodywork, BPSB is an art of listening and facilitating. Listening implies acknowledgement and understanding of subtle bodily phenomena; for example, movements, patterns, rhythms, pulsations, sensations, and tendencies to congestion, spasms, and resistances. Facilitation means assisting the body to release those resistances and blockages present within bioenergetic networks, fluids, tissues, or visceral organs, allowing suppressed emotions and feelings to emerge, new insights to get acknowledged, and positive perception to arise.

**Manual Approach to Bioenergy**

Behind hyper- or hypofunctioning of any affected part of the body or mind, there is always either bioenergetic excess or deficiency. The therapeutic touch for approaching bioenergetic networks has either a sedating or tonifying quality. The first type of pressure is applied when the vital force is excessively concentrated, with consequent energy stagnation, while the second one strengthens the vital force in the energy-deficient locations. Prolonged disturbance in any part of the bioenergetic system may alter function of a related endocrine gland, which further affects the PNEI system, capable of setting up a disease on both the physical and psychological levels, where timely recognition and treatment of the bioenergetic imbalances offer an important contribution to both preventative and curative medicine.

**Manual Approach to the Bodily Fluids**

The quality of the therapeutic touch for treatment of the fluid system of the body is "fluid specific." Manual bioregulatory methodologies may engage the flow of the circulating extracellular fluids, including arterial and venous blood, lymph, and cerebrospinal fluid.

Direct stimulation of arterial circulation is achieved by movements that heat up the body, such as friction, hence stimulating arterial vasodilatation in the restricted areas. Apart from increasing heat, there are other mechanisms for manual assistance and facilitation of the vascular system. Stroking for example may additionally liberate peripheral vasoconstriction via activating the parasympathetic system, which generally assists the flow of both arterial blood and the lymphatic circulation. Although those methods may also enhance venous circulation, venous stasis is treated similarly lymphatic stasis. It is particularly important to drain the jugular vein along the front edge of the sternocleidomastoid muscle, due to its significance and accessibility.

Another fluid commonly in need of therapeutic facilitation is the lymph. Since the physiological process of lymphatic drainage is based on a gentle and unique siphoning movement, it too could be manually assisted and facilitated. The lymphatic drainage massage technique helps improve functions of the lymphatic system, being particularly effective in treatment of lymphoedema. The technique follows the direction of lymph flow from the head and extremities toward the cervical, axillary, and inguinal lymph nodes. The therapeutic touch is mainly based on applying effleurage like rhythmical movements in the centripetal direction toward the heart, and along the anatomical projections of lymphatic vessel, as well as pump-like movements over the projections of lymph nodes. It is frequently important to drain the left subclavian vein, since it is where the thoracic duct delivers the lymph into the venous circulation.

The cerebrospinal fluid (CSF) expresses a rhythmic, tidelike fluctuation referred to as longitudinal fluctuation. Within this physiologically rising and sinking movement of the CSF, there are also other physiological currents flowing around the structures of the brain and spinal cord, similar to currents in the ocean within the movement of the tide. Longitudinal fluctuation is a normal fluctuation of healthy CSF. The cerebrospinal fluid tide may be sensed by palpation as a welling up and receding or drawing away of a force. Conditions such as chronic fatigue or ME are typically associated with very sluggish, congested, and stagnant CSF fluctuation that calls for manual facilitation, while conditions such as inflammation or hyperactivity correlate with increased speed of the fluctuation, a disturbance that could easily be downmodulated by means of the craniosacral bodywork. Bioregulation of the cerebrospinal fluid flow has a profound impact on the entire PNEI system.

**Manual Approach to the Connective System**

Since connective tissue inter-connects bodily parts on both the micro and macro level, it creates the entire physiological system – the connective system. On micro level, the connective system interlinks all cells of the body, as well as all intracellular structures and organelles. Intracellular connective structures are minute threads known as microtubules and microfilaments. On macro level, the connective system interconnects tissues, organs, and organs systems; hence those connective structures take various anatomical forms, such as membranes, fasciae, tendons, or ligaments. The therapeutic intervention on the tissue level involves bioregulation of the connective tissue and fascial system. On the organ level, BPSB approaches organ-specific connective structures: tendons, ligaments, muscular sheath, and visceral protective layers such as pericardium or pleura. Connective structures that correspond to the level of physiological systems, such as dural membranes or peritoneum, are very complex and need very delicate manual therapeutic interventions.

A system of interconnected connective tissue fibers is frequently just referred to as the body fascia. The physiological movements of fascial structures are experienced on gentle palpation as a distinctive "gliding" sensation. Resistances to normal fascial glide, as well as membranous restrictions, are experienced as micromovements with a "recoiling effect." The basic manual principle for fascial release is traction.

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# Bodywork

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**Manual Approach to the Musculoskeletal System**

Muscles can be classified as smooth or striated, voluntary or involuntary, longitudinal or circular, big or small, skeletal or visceral. Yet regardless of their anatomical or physiological specifications, each muscle has its unique tonus, wherein muscular dysfunction is always manifested either as hyper- or hypotonicity. There are different manual techniques for restoration of muscular tonicity; a few of the most commonly practiced are stroking or effleurage, kneading, friction, tapping, vibration, and stretching. Effleurage is the least invasive, wherein the therapist makes use of long and sweeping strokes to cover more than just one area of the body usually to initiate the treatment, warm up the body, and provide a sense of interconnectedness from one part of the body to the others. Kneading consists of intermittent grasping, squeezing, and releasing movement that attempts to lift the soft tissue away from the underlying and adjacent structures. Friction is mainly used to warm up the treated area, and to apply shear forces to underlying tissues, particularly at the interface between two tissue types; for example, dermis–fascia, fascia–muscle, or muscle–bone. Tapotement, tapping, or percussion are strokes aimed toward energizing the area being treated, yet at the same time loosening and relaxing it. The vibration technique is used to shake up various areas of the body, while traction involves pulling the peripheral bodily parts such as head, arms, legs, fingers, or toes.

Bony structures have a very definite physiological motion, which is shaped by their relationships with the surrounding tissues. Although certain skeletal maladjustments may still call for osteopathic or chiropractic interventions, a revolution has taken place in manipulative therapy involving a movement away from high-velocity/ low-amplitude thrusts, characteristic of most chiropractic and some osteopathic manipulations. The new tendency is toward gentler methods of skeletal realignment; hence BPSB is using methods of craniosacral therapy, which takes far more account of the soft tissue component.

Sensitive therapists can even detect, explore, and manually bioregulate the most intricate relationship between anatomically distant parts, such as the relationship between the tentorium cerebelli and the respiratory diaphragm, or between the temporal bones and sacroiliac joints. It is a sad truth that the palpatory skills taught at medical schools worldwide barely scratch the surface of the therapeutic possibilities of human touch.

**Somatoemotional Release**

Manual bioregulation of the biological terrain often triggers resurgence of previously trapped psychological pollution. When suppressed experiences start to surface, the bioregulatory psychosomatic approach shifts from purely somatic work to techniques for emotional release and cognitive reintegration. This part of BPSB is referred to as the Somato Emotional Release (SER).

SER is the body-mind response to the psychosomatic therapeutic intervention. It is essentially a shift from body to mind; from structured rigidity back to psychological experiences; from potential energy trapped in physical spasm to the kinetic energy of heat, motion, or emotion. SER is the core process that restores Health, the process of conversion of matter into energy, the cathartic homeostatic rebalance in action. Regardless of whether this response of the body and mind manifests as a gentle and gradual or a sudden and intense process, SER is always based on undoing, unfolding, releasing, and surrendering.

**Tissue Memories**

Persistent stress and traumas throughout one's life tend to get "downgraded" and converted into musculoconnective strain and spasms. The consequent body armoring therefore becomes a form of tissue memory that keeps a record of all unprocessed stressful and traumatic events since prenatal time. Those memories are accessible by means of manual therapeutic approach. The more defensive armoring is therapeutically released, the more a person is able to surrender suppressed emotions and experiences.

**Mechanisms of Somatoemotional Release**

SER usually starts with release of structured resistances of the body. Those may be experienced as sore, ticklish, sensitive, "needy," itchy, or painful places. Release of structural resistances involves a combination of bodywork techniques needed to liberate an individual-specific chronic pattern of tension and restriction; for example, a combination of acupressure, lymphatic drainage, and tendomuscular techniques. BPSB than facilitates a somatopsychic leap, by means of applying a variety of SER techniques. BPSB initiates and maintains this healing process under controlled medical conditions, ensuring that optimal structural release and psychological resolution take place. Although the process is always as specific to each person as one's fingerprints, it is possible to describe this somatopsychic process in general terms.

SER is usually experienced as a combination of energetic, mechanical, and emotional phenomena. Energetic mechanisms mainly manifest as local

Tatyana Bosh, MD, is a president of International Society for Bioregulatory Medicine and a medical director of the British Academy for Bioregulatory Medicine. She practices at the Biomedic Centre, 23 Manchester Street, London W1U 4DJ, where she is also running regular courses on Bioregulatory Psychosomatic Bodywork. For more information, contact www.biomedic.co.uk or +44(0)20 7935 6866.

experiences of heat, cold, or pulsations. Sometimes, the experience may even manifest as a short-term fever, in which case antipyretic drugs are usually contraindicated, as they would halt this essentially healing process.

Mechanical mechanisms are typically expressed as automatic and effortless movements of various parts of the body. They represent conversion of potential energy stored in musculoconnective tissue, into kinetic energy. These movements too are short lived, and they are followed by a noticeable sense of liberation. They may manifest as shivering, tics, restless legs, and similar tonic and clonic muscular responses. Sighing, coughing, yawning, burping, hiccupping, cramping, or rumbling of the bowels are the most typical forms of somatic release. Once those spontaneous movements start appearing, it is important to encourage them, as they represent a mechanical release of stored bodily tension.

Emotional release manifests as reexperience of emotions previously suppressed and embodied. The person may suddenly develop an impulse to cry, laugh, scream, or shout, or become overwhelmed by fears. Those emotions, particularly laughing or sobbing, also help release diaphragmatic spasm, as do hiccupping, coughing, yawning, burping, or sighing.

Apart from a manual therapeutic approach such as BPSB, other therapies, even those considered exclusively psychological or energetic methodologies, such as hypnosis or acupuncture, may be equally effective in inducing a full somatoemotional release. Both somatic and psychological parts of this therapeutic somatopsychic process may be additionally facilitated by use of homeopathic bioregulatory medicines (e.g., New Vistas Nutraceutical combination remedies or Heel's antihomotoxic remedies), essential oils, crystals, music, and colors.

### Psychosomatic Reintegration

The process of SER usually starts on a physical level and ends up as an increased personal integrity. After successful SER, the original traumatic experience remains in the cognitive memory, but it loses its excessive emotional charge, since SER prompts psychological resolution to take place. The old trauma becomes a new opportunity, as an old conflict gets realized in a more meaningful and more bioeconomically viable way. Hence, the process of SER typically ends up increasing personal awareness and improving one's psychological processing. Heightened personal awareness increases an individual's ability to suspend defensive mechanisms of the ego, which further amplifies inner health resources and shows the way how to grow out of a diseased state of the body-mind.

### Conclusion

The human organism is a hierarchically structured multidimensional system of living energy and matter. Since it functions as an integrated whole, a disruption or resistance that arises within its physical, psychological, or energetic reality has immediate repercussions on all aspects of the human living system. Each of those biological realities is equally important for therapeutic intervention, and equally capable of facilitating one's overall psychophysical integrity. In other words, restoring optimal health implies understanding of intricate correlations and biofeedback loops between body, mind, and bioenergy. This calls for an interdisciplinary therapeutic approach that transcends medical politics and divisions into different therapies, methodologies, and modalities. BPSB brings together structural, psychological, and energetic medical interventions to help in releasing and balancing an individual's specific pattern of tension, restriction, and disharmony. By facilitating processing of denied and incorporated experiences, BPSB primes patients toward a higher level of psychosomatic integrity and discovering a new sense of personal freedom.

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# Triaging Chronic Pain Conditions

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# A dialogue with Steve Amoils, MD, and Sandi Amoils, MD

## Based on an Interview with Nancy Faass

Drs. Steve and Sandi Amoils have traveled the world looking for the best of alternative medicine. Originally from South Africa, they met in medical school and found that they both had a deep interest in the nature of healing. As a teenager, Steve had been a highly-ranked competitive swimmer when he developed severe chronic fatigue. Despite the best medical advice and care, his condition did not improve until he met an acupuncturist who was able to help him regain his health. Subsequently he was able to successfully complete both college and medical school. Despite the significant stress and reduced sleep schedule in his later role as a physician, the fatigue never returned.

As a result of these experiences, Steve came to question what constitutes true healing and when he met Sandi, he found that she also had a deep sense of inquiry about health and medicine. This led them on a quest of sorts, traveling the globe for two years after medical school, living and working in different cultures, observing how illness was treated. They visited African medicine men, Philippine psychic surgeons, and herbalists worldwide, and subsequently apprenticed with an acupuncturist in Japan. The following year while working in London as physicians, they traveled Britain and Europe observing the healing modalities that the Europeans were using. This search for healing has continued. Today they are fascinated with how modern modalities such as genomics, nanotechnology, and computer technology are applied in health services and healing.

These experiences have deepened their understanding of complementary therapies and continue to inform and enrich how they practice medicine. While they came to believe that there was no such thing as *the* magic bullet, they began to see synergy between various therapies and realized that these treatments could be combined in new ways to maximize benefit to the patient. The challenge was to determine which therapies provide the greatest synergistic effect and how to integrate that benefit to achieve a quantum shift in the health of their patients.

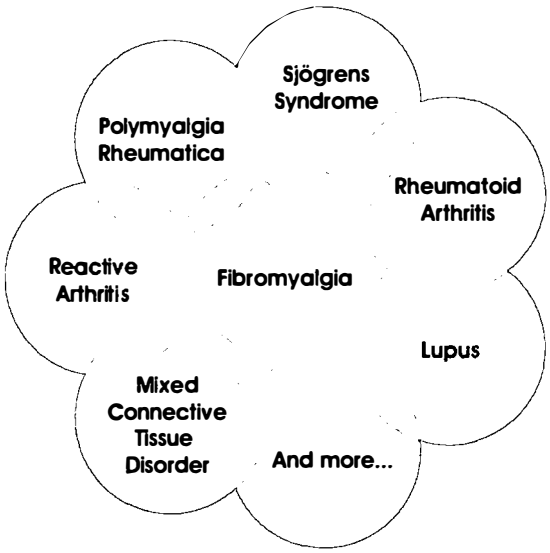
In 1999, they opened the Alliance Institute for Integrative Medicine (AIIM) in Cincinnati at the request of the CEO of the Health Alliance, a consortium of hospitals, physicians, and specialists. In 2004 their center was chosen by the Bravewell Collaborative as one of the leading clinical integrative medicine centers in the country. Since then they have collaborated with other centers in advancing the

field of integrative medicine by sharing information and participating in clinical trials. The Amoils took their center private in 2007 and now oversee approximately 25,000 patient visits a year.

**Autoimmune Conditions**

Nancy: I know you have an exceptional approach to the diagnosis and treatment of pain. Tell us about how you work with autoimmune patients.

Steve Amoils, MD: With autoimmune diseases, much of the pain that we see is driven by both arthralgia and fibromyalgia. When we speak of fibromyalgia we are talking about fatigue with generalized aches and pains. We've found that if we can treat those two conditions, often we can effect real change. Viewing pain across a spectrum, if we think in terms of a Venn diagram, in the middle of the diagram is fibromyalgia driving all the other symptom patterns.




We target these conditions through a five-pronged approach: 1) expanded conventional medical options, 2) stress and neurotransmitter assessment and treatment, 3) nutritional, metabolic, and immune status evaluation and treatment, 4) functional hormonal evaluation and treatment, and 5) structural and bioenergetic balance assessment and treatment.

Nancy: How do you assess these patients to get a really clear picture of what they need?

Steve: There are two different vantage points. One approach is to assess these five areas, see which one is likely to give the highest yield, and then start with a therapeutic trial of a medication, supplement or a treatment modality. When I see a patient with pain and depression, I might utilize a treatment modality such as acupuncture or massage. I would also recommend that patient an antidepressant like Cymbalta (which targets both pain and depression) or I might recommend some supplements that will do the same thing. I then watch for the degree to which their pain improves. If I think that their problem is inflammatory in nature, then I may give them an anti-inflammatory medication or supplement. If it's myofascial, I may try acupuncture first, and see if we can get the trigger points to calm down. The other approach is to provide an in-depth evaluation of each of the five prongs, and then come up with a personalized plan. The patient is always at the center of this conversation. We need to take into account their needs and desires.

Sandi: We are constantly assessing what is best for the patient. Do we need more of one thing, or a combination of everything? We need to factor in cost, the time they have available, the length of time they have been ill, their support systems, and a host of other factors.

Nancy: So in a way I'm hearing a step-by-step assessment similar to the approach you use to treat chronic pain, but it's broader. What else about your approach do you feel is important?

Steve: At this point, integrative medicine is an all-inclusive term for a field that tends to be highly variable. The providers that do stress reduction are not necessarily doing body work. The body workers are not usually doing functional medicine. The functional medicine people are usually focusing primarily on biochemistry and nutrition. Few providers are integrating all of these approaches. That is why we continue to work on developing a model that provides all these therapeutics in-house at one location.

Sandi: We always use a functional medicine systems-approach when dealing with autoimmune issues. We address nutritional factors, oxidative stress, inflammation and detoxification issues. We can try a therapeutic intervention and observe how the patient reacts, or utilize a functional lab workup to better evaluate what he or she needs. Testing in this area is becoming much more sophisticated. If we know for instance that someone has an IL-6 or TNF-α SNP, we may want to utilize supplements or lifestyle changes that inhibit the expression of these genes. We are constantly working with diet and nutrition, and will assess gut hyperpermeability and the gut microbiome when possible. We always address stress and psychological issues since these compound immune imbalances. The goal is to find a way to modulate the patient's immune system, to downregulate it.

**Pain Disorders**

Nancy: Do the majority of your patients have pain conditions, and how do you manage to see so many patients?

Steve: At least 70% of our patients have pain. They may not have pain as their primary issue, but 70% to 80% experience some degree of pain. We are able to serve more people because we use an integrative team-based model

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## Multidimensional Diagnosis for Chronic Pain Conditions

| Discipline and Providers | Causal Factors and Indications | Approaches to Diagnosis | Therapeutic Interventions |
|---|---|---|---|
| **Conventional Medicine**<br>Primary care physician, orthopedist, sports medicine doctor, physical medicine and rehabilitation specialist, neurologist, neurosurgeon, rheumatologist | Injuries of any magnitude<br>Pain conditions that have persisted for more than three months<br>Comorbidities that may also be contributing to the pain | Labs; imaging such as X-rays, MRI, EMG (electromyogram), ultrasound, and other diagnostic tools | Intra-articular injections, facet and nerve blocks, epidural steroid injections, anti-inflammatory, immune modulating and pain medication, physical therapy, physical medicine and rehabilitation, surgery |
| **Integrative or Functional Medicine**<br>Providers who practice functional medicine (MD, ND, DO, PA, NP) | Disorders involving chronic pain or inflammation, low neurotransmitter levels, hormones out of balance, or chronic stress | Lab work including markers for inflammation, nutrient deficiencies, oxidative stress levels, mitochondrial dysfunction, gut dysbiosis, hormone and neurotransmitter levels, the cortisol curve | Treatment with nutrients, herbs, medications, bioidentical hormones, prescribed lifestyle, referrals to integrative therapies |
| **Structural/Biomechanics**<br>Chiropractor, osteopath, craniosacral therapist, physical therapist, Rolfer, exercise therapist, Alexander Technique | Acute or chronic pain in the neck, shoulders, hips, low back, or joints<br>Disorders such as spinal stenosis, osteoarthritis, TMJ/jaw pain, headaches and some migraines, sprains and strains, posture problems<br>Referred pain | Hands-on evaluation of the musculoskeletal system for functionality, movement, and range of motion, with palpation of the tissues to identify the precise area of pain or referred pain, and to briefly reproduce the pain | Manipulative therapy: chiropractic adjustment, mobilization, craniosacral therapy, prescribed exercise, nutrition |
| **Myofascial System**<br>Bodyworker providing deep tissue massage, Rolfer, osteopath, neuromuscular therapist, acupuncturist, medical massage therapist, Feldenkrais , energy healing, tui na | Myofascial pain: palpable nodules, taut bands, localized pain, or referred pain due to overactive trigger points or fascia<br>Soft tissue disorders | Hands-on identification of the pain through palpation or injection of local anesthesia or use of acupuncture needles to identify and then calm a particular point | Deep tissue massage, myofascial release, trigger point therapy, spray and stretch techniques, muscle relaxant herbs or medication, acupuncture |
| **Acupuncture treatment of pain**<br>Physician acupuncturists, licensed acupuncturists | Acute and chronic pain: Localized pain: e.g. arthritis, bursitis, neck or low back pain, sports injuries, tennis elbow<br>Myofascial pain: Regional myofascial pain syndrome, fibromyalgia; Neurogenic pain due to an irritated or pinched nerve: herniated disc, post herpetic neuralgia (shingles)<br>Clinical syndromes: migraine, chronic daily headache, irritable bowel syndrome, premenstrual syndrome. | Physician acupuncturists use a conventional medical workup. All acupuncturists may utilize traditional oriental diagnostic techniques such as pulse and tongue diagnosis, general palpation to ascertain tissue turgor and vitality, abdominal palpation | Acupuncture therapy, acupressure, electrical stimulation including TENS, interferential and horizontal microcurrent, low-level laser acupuncture, ultrasound, frequency specific microcurrent (FSM), lymphatic massage, cupping, moxa, herbal therapy<br>Address acupoints that reduce pain, increase neurotransmitters, reduce cortisol, induce sleep, and rebalance autonomic nervous system |
| **Energy Medicine**<br>Providers of energy healing, healing touch, or reiki; craniosacral therapist, acupuncturist, qigong teacher | Bioenergetic imbalances<br>Acute or chronic pain, connective tissue disorders, autoimmune conditions, stress-related issues such as anxiety and depression, chronic fatigue, central nervous system dysfunction, and PTSD | Assessing bioenergetic imbalances through palpable or visual evaluation of the body's aura and chakra system | Healing touch, acupuncture, craniosacral therapy; specific systems including those of Rosalyn Bruyere and Barbara Brennan |
| **Body-Mind Therapies that combine touch and talk**<br>Somatic therapist, biofeedback provider, practitioners of Rosen Method, the Trager Approach, and Rubenfeld Synergy | Deep-seated tension resulting from physical or emotional trauma or post-traumatic stress, associated with physical or sexual abuse, injury, or war-time trauma that can result in somatized symptoms or hypervigilance<br>May be associated with chronic stress, depression, anxiety, allodynia, gastrointestinal disorders or fibromyalgia | Increasing the patient's awareness of chronic tension in the body, associated with past trauma or stress; this may involve use of biofeedback or bodywork in combination with psychotherapy | Insight therapy, somatics, EMDR, systematic desensitization, neurofeedback, mindfulness-based stress reduction, meditative therapies |
| **Mind-Body Medicine**<br>Psychologist, psychotherapist, psychiatrist, marriage and family counselor, life coach, trained chaplain, or spiritual counselor | Dysfunctional life patterns<br>Chronic stress<br>Low neurotransmitter levels reflected in symptoms such as depression, anxiety, or lack of drive | Understanding the patient from a psychological, social, or spiritual perspective; use of psychological evaluations | Insight therapy, cognitive therapy, guided imagery, or life coaching<br>Support reconnection, interpersonally, spiritually, or with life purpose |
| **Lifestyle Analysis**<br>Any of the practitioners above, as well as providers who offer biofeedback, industrial medicine, integrative medicine, naturopathy, integrative health coaching, holistic personal trainer | Chronic tension or pain due to repetitive strain, computer-stress, or other workplace injuries<br>Poor posture, lack of exercise, stretching, or strengthening<br>Poor nutrition or excessive weight gain; apnea or sleep debt | Patient awareness and education involving lifestyle, workstyle, nutrition, stress reduction, and exercise | Programs designed to support lifestyle change; health coaching |

that includes a physician-acupuncturist on every team, so patients can be medically assessed and then treated with an integrative approach simultaneously.

Nancy: How long does it typically take to resolve chronic pain – these problems tend to be so individual and so complex.

Steve: The rule of thumb we give to patients is 50% reduction in their pain in four treatments. That's what we're aiming for.

Sandi: We cannot help everyone; we do struggle with some patients. In terms of how we see so many patients, we have many different therapists working under one roof. Everyone sees individual patients and they also work together on some of the treatments.

We recently participated in the SIMTAP study, practice-based research involving nine centers across the country. This study, sponsored by the Bravewell Collaboration, documented various therapeutic approaches to the treatment of chronic pain using integrative medicine. Patients on average had experienced chronic pain for more than eight years. Those who enrolled were 81% white, 73% female, with an average age of 49. Each center enrolled approximately 50 patients, provided treatment, and then followed them over a period of six months. We used standardized questionnaires that the patients answered, looking at depression scores, quality of life, etc. The study also included lab work documenting hs-CRP and vitamin D levels for all patients, pre- and post-study.

The outcomes overall were quite remarkable. On average there was a significant reduction in pain and in the level and frequency of depression, as well as improvement in quality of life. When the data were run for each individual center, on average the patients seen at our clinic had a 50% reduction in pain.

Nancy: Amazing – 50% reduction in six months is an astonishing outcome!

Sandi: For this study, each center had their own "black box" approach to chronic pain. Practitioners utilized the modalities and proprietary protocol of the center where they practiced. In our approach, individual patients are seen by both physicians and therapists. We have chiropractors, Rolfers®, and massage therapists, as well as nurses who do energy healing. We also provide stress reduction classes, and we have a nutritionist who works with people on their diets.

Our signature treatment for pain is a series of combination therapy sessions, which we refer to as an ACE session, consisting of acupuncture, chiropractic, and energy work. In a single visit patients are assessed and treated using all three modalities. Initially they are seen by a chiropractor. Then a physician sees the patient (all our physicians are acupuncturists) so the doctor provides an acupuncture treatment, and addresses any medical aspects of care that may need to be discussed whether that involves supplements, testing, or other issues. Once the acupuncture needles are in place, a nurse provides energy healing to deepen the treatment. The entire treatment takes about an hour, and almost always, patients leave feeling deeply restored.

We may also use frequency specific microcurrent provided by a chiropractor or one of the physician acupuncturists. We have a physician who provides prolotherapy for patients with joint pain. For each particular patient, our goal is to identify the special combination of therapies that will be most effective. As a team, we tend to have good communication – we refer to one another and confer with each other about the patients. If we are not resolving their pain, then we know we have to make changes in what we're doing or explore other treatment options. This is a very real-time focus on clinical effectiveness, and we tend to work quite well with one another using this process. Our goal is to create a cohesive team of providers who understand what everyone on the team is doing.

Steve: Another key to our pain treatment is that we are very attuned to the effects of chronic stress on chronic health issues. We make it a point to address stress disorders very thoroughly, using an in-depth systemic approach we've developed from a functional medicine model. ➤

## Stress and Neurotransmitter Assessment and Treatment

The patient's adaptive stage of stress is evaluated. Diurnal salivary cortisol levels, salivary DHEA, and urinary neurotransmitter levels are evaluated. Patients are divided into various stages of stress:

a. The Exhilaration Phase: Patient unlikely to seek treatment in this stage. Testing results tend to be variable.
b. Wired and Tired Phase: Cortisol generally drops in the morning ("tired") and increases at night ("wired"). Glutamate, epinephrine and norepinephrine may be elevated. Serotonin and GABA may be increased.
c. Exhausted Phase: Cortisol is generally decreased throughout the day. DHEA levels are generally lower. Epinephrine, norepinephrine, serotonin and GABA may be decreased.
d. Exhausted and Inflamed Phase: Results are similar to the exhausted phase, but pro-inflammatory cytokines are elevated, while anti-inflammatory cytokines decrease. Insulin resistance increases.
e. Overwhelmed and Depleted Phase: Cortisol diurnal rhythms are lost. Cortisol levels are low.

Epinephrine, norepinephrine, serotonin, and GABA levels are generally low. Patients are usually clinically depressed. Autonomic testing reveals autonomic dysfunction including neurally mediated hypotension and reduced heart rate variability

Treatment options include acupuncture or massage to reduce stress, behavioral approaches such as health coaching or stress management classes, exercise programs such as yoga, tai chi or chi gong, supplements including stress adaptogens, and/or medications.

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Sandi: For us everything depends on what our patients want. We offer a range of options from CDs and different classes to one-on-one health coaching. We refer out if needed, and we also have classes here. In terms of stress reduction, often just acupuncture or massage therapy is highly stress reducing. We have a Duke-trained integrative health coach, as well as very impressive naturopath who works hand-in-hand with our physicians. Understanding the benefit of Functional Medicine really brought our model to new level and expanded the types of health issues we are able to address. We have had very encouraging outcomes with chronic pain beyond our initial expertise in biomechanical and acupuncture pain management. For example, one woman who suffered from a twenty-year history of chronic headaches had them resolve overnight with the correct amino-acid supplementation, while another woman with a similar clinical picture had a fatty acid deficiency that was resolved with a fish oil supplement.

**"As pain is reduced in the process of treatment, it is also important to put control back in the hands of the patient, in terms of when and how to reduce their pain."**

Nancy: Sounds like you are always watching for that tipping point, staying attuned to which therapy is going to make the difference. That is a very Zen approach – to be that present and that dialed in to what is going to create change.

Steve: We've observed that pain does not improve in a linear fashion. It is like a pendulum: you have to nudge the patient toward normal. Then they revert back to their earlier set point. At that stage, you have to nudge them again, and you must continue to periodically nudge the body toward a feeling of optimal health, getting them accustomed to the experience of being pain-free. That is a back and forth process, and the art is to be able to nudge the body when you need to. Initially, patients with pain come in for treatment once a week. Over time, we wean them off the therapy. After that, they tend to come in once every two weeks, then every three weeks, eventually every month, and then every six weeks. Despite their progress, they often find that they start to develop some mild aches and pains, and that's why it is important to continue to see them periodically.

It is also important to put control back in the hands of the patient, in terms of when and how to reduce their pain. This can be extremely effective. Once they realize that X therapy is reducing their pain by Y amount, then they will tell you, "I need a treatment here," or "I need to see you this often." You're transferring the locus of control from the doctor to the patient, which is something we really appreciate.

We hold ourselves to a very high standard. If the patient keeps coming back saying, "My pain is no better," we need to adjust what we are doing. Periodically we have to cease treatment because we are not seeing improvement. We don't want to waste our patients' time or money. We are exceptionally honest about that. When we ask patients in a month's time whether they are better, if their answer is, "Maybe." or "Possibly." or "A little bit." that's not better. Better is when they come in and say, "Wow, I feel fantastic! I've got my life back."

Assessing our patients' readiness for change is another important piece of this. Our goal is to help our patients make vital changes – to help them transform their lives, experience more happiness, less pain, and fewer overall health problems. To achieve that, they need to be ready for change. Typically people need different things at different points in their lives. Some patients just want periodic symptom reduction, while others want an entire lifestyle transformation. We are there to partner with them in their decision making, but only *they* can decide how and when they are going to implement the resources that we can provide them. The key is understanding their readiness for change and giving them an approach they can handle. That is the basis for a powerful and personalized approach that is simultaneously pro-active and preventive as well.

**Steve Amoils, MD, and Sandi Amoils, MD**

Steve and Sandi Amoils are the founders and Medical Directors of the Alliance Institute for Integrative Medicine (AIIM) in Cincinnati. Board-certified in family medicine, they also serve as Adjunct Assistant Professors in the Department of Medical Education at the University of Cincinnati. Sandi is the president-elect of the American Academy of Medical Acupuncture (AAMA), while Steve serves as president of the Ohio Chapter of the AAMA. Both act as co-Principal Investigators for ongoing research with the Bravenet Practice Based Research Network.

After completing medical training in South Africa, they spent two years traveling the world, seeking out and studying healers in indigenous medical systems. They later immigrated to the U.S. in 1988, completed family practice residency programs at the University of Cincinnati, and subsequently studied medical acupuncture with Dr. Joseph Helms at UCLA, and functional medicine with the Institute for Functional Medicine. Together with their team of physicians and therapists, the Amoils have been offering

a comprehensive integrative approach through their center, the Alliance Institute for Integrative Medicine, since 1999, pioneering what they term Transformational Medicine™. In 2008, they formed the non-profit Integrative Medicine Foundation (www.IntegrativeMedFoundation.org) with the goal of educating both physicians and the public on the benefits of Integrative Medicine, performing research, and serving the underserved utilizing Integrative Medicine.

**Contact**

Alliance Institute for Integrative Medicine
6400 East Galbraith Road
Cincinnati, Ohio 45236
513-399-6305
Fax: 513-791-5526
Website: www.MyHealingPartner.com

**Resource**

Written by Drs. Steve and Sandi Amoils, *Get Well, Stay Well: Optimal Health through Transformational Medicine* is a user-friendly guide that explains many of the basic concepts of functional medicine in a way that patients can understand and apply. The book opens with an insightful look at the interplay between chronic stress and chronic illness to help readers begin retracing their steps back toward health. Building on this foundation, the nutrition section emphasizes low-stress eating, including concepts such as glycemic load, genetic expression, and sustainable weight loss, as well as optimal digestive health and detoxification. Hormone chapters cover the interaction between stress, cortisol, and sex hormones, as well as topics such as PCOS, hormone testing, and supplementation. The chapters on pain alone are worth the price of the book and provide in-depth information on the perspective reviewed in this article. This work is a must-have that integrative providers will want to make available to their patients.

**Interview and Editorial**

Nancy Faass, MSW, MPH, is a writer and editor in San Francisco who has worked on more than 40 books for publishers that include Elsevier, Harper, McGraw-Hill, Mosby, New Harbinger, New World Library, North Atlantic, and other presses. Director of The Writers' Group, her work also includes articles, white papers, and writing for the web. For more information see www.HealthWritersGroup.com.

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# Paralysis Reversed in Six Weeks Flat: Spinal-Cord-Restoring Miracle Substance – 'Hidden Away' for over Two Decades – Finally Revealed

## by Jonathan V. Wright, MD

**Reprinted with permission from Dr. Jonathan V. Wright's *Nutrition & Healing*. December 2013. www.WrightNewsletter.com.**

In a 2007 report written by National Institutes of Health researchers, published in the journal *Endocrinology*, two revealing footnotes appeared. They referred to previous research articles which had demonstrated that a safe, entirely natural substance actually helped repair and restore some lost function in experimental animals whose spinal cords had been completely severed.[1]

Even more surprisingly, the two prior research articles mentioned in these footnotes were reported in 1983 and 1990, and (as there were no other footnotes on this or related topics listed in the 2007 report) it's very likely that no similar research on this topic has been published since.

Think about that for a moment. A safe natural substance that can help restore even *partial* function after a spinal cord has been completely severed should be very big news. You'd expect that the revelation that paralyzed and stuck in a wheelchair after a devastating spinal cord injury is *not* a life sentence should have been on the front page of every newspaper across the world. Yet you've likely never even heard about this breakthrough. And neither had I.

### Bladder Function Restored in Two Weeks

In the 1983 research, 22 rats (11 male, 11 female) had their spinal cords completely transected (formal technical talk for "cut all the way through").[2] Twelve (group 1) were injected with the safe natural substance every day for the first week, then every other day for three more weeks. Ten – the control group, or group 2 – were not given this injection.

Criteria used to judge improvement of the totally cut-across spine were bladder function, and ability to climb up an inclined plane ("ramp" in English). Both of these abilities were totally lost after the spinal cord was cut completely cut across.

The researchers wrote: "Regaining of bladder function, as demonstrated by spontaneous emptying of the bladder with no residual urine was observed in all the animals in group 1, within the first two weeks. ... In group 2 animals, no recovery of bladder function was noted even after six weeks."

At 6 weeks all were walking again!

Ability to climb the ramp was not as completely recovered, but there was significant improvement. Four of the 12 treated animals had complete recovery of this ability – back to normal, prespinal transection function – while the remaining 8 in the treated group could walk, but not 100% normally. In group 2, the untreated group of rats, all were still paralyzed 6 weeks after spinal cord transection.

The researchers also wrote: "Histological evidence of bridging of the gap between the ends of the spinal cord by nerve fibres containing tissue was noted in the ... treated rats only." Histological evidence refers to evidence gathered from direct observation using a microscope; it's very hard to argue with that. Under the microscope, nerve fibers were seen to be "bridging the gap" between the cut-apart pieces of the spinal cord, and they "contained tissue."

As there was 100% improvement in bladder function in all the treated rats, as well as variable recovery in ability to climb a ramp in the treated rats, and none whatsoever in the untreated rats, that "contained tissue" must have been *newly formed functional nerve tissue*.

### Nerve Function Recovered in Mere Weeks

These improvements were stimulated by a safe natural substance. I'll identify that spinal-cord-restoring miracle substance in just a moment, but first let's take a look at a 1990 report, which had one of the same authors as the 1983 report.[3] In this research, 21 rats had complete transection of their spinal cords. Eleven were given the safe natural substance for 6 weeks. The other 10 – again, the control group – were not.

After 6 weeks, there was a significantly greater electronic measurement of "motor action potential" (for the technically inclined, $p < 0.02$) in the treated rats. An action potential is the electrical signal traveling down a neuron – in this case

a motor neuron – which travels from the central nervous system to muscles. If this signal is significantly greater in the treated group than in the control group, it signifies a significant – even if not complete – recovery in that nerve function.

So what was this entirely safe, natural, and effective substance which helped these paralyzed rats to recover function? Why haven't we heard about it before? Actually, we have heard about it a lot, especially lately. The substance is ...

**Human Chorionic Gonadotropin (HCG)**

Yes, the same HCG that's helped so many to lose weight (see my newsletter *Nutrition & Healing* March 2008 for details about that aspect) and that has been the subject of intense criticism from "authorities." If you recall, HCG is secreted in large quantities in the first trimester of pregnancy, and we all were literally infused with small quantities of it for approximately the first nine months of our physical existence. If HCG *were* actually dangerous, chances are you and I wouldn't even be here on planet Earth!

But how does a "pregnancy hormone" help a completely severed spinal cord form new nerve tissue in experimental animals? How do injections of this natural substance lead to complete recovery of bladder function, and partial to complete recovery of walking capability? The simplest answer is that hormones – and many other natural components of human and animal bodies – typically have more than one function in our bodies. In fact, they often have many functions. Researchers have found this true of HCG, also. HCG is much more than just a "pregnancy hormone."

**Two Totally Paraplegic Humans *Walking with Crutches* After HCG Treatment**

But the 1983 research report was not entirely confined to results achieved in experimental animals. In the very last two paragraphs of the nine-page report, the researchers wrote: "We have started a clinical trial on patients with total paraplegia using 20,000 units of HCG intramuscularly on the first day, followed by 10,000 units every day for the first week, and then 10,000 units every alternate day for five weeks. Whenever there was evidence of blockage, spinal canal decompression was carried out. The first patient with a lesion at T11-T12 spinal segment, now after three months is able to stand with a walker and move his lower extremities with voluntary movement in all muscle groups. The second patient, now after five weeks with a lesion at T1 spinal segment has almost complete sensory recovery, including bladder sensation, and has voluntary muscle contraction in both proximal [near] and distal [far] groups of muscles in his lower extremities."

An undated addendum by the same authors (printed with the original research report) states: "Both patients mentioned in the paper are now able to walk with the help of crutches." That's right, two paraplegic men who weren't able to walk were able to walk with crutches after HCG treatment! And yes, the quantities used were massive, but there was (as might be predicted) no mention of adverse events. And also yes, massive doses of HCG are expensive – although not as costly as the average hospital bill – but for the chance to walk once again, what would you do for yourself, a family member, a close friend?

**Criticism by the 'Chairman of the Editorial Board'**

The actual research report was followed by a statement of disbelief from the chairman of the editorial board of the journal, who wrote: "... no real proof has been given that a functional regeneration within the sectioned [cut across] did occur at all and that human chorionic gonadotrophin positively influenced the functional recovery."

The researchers replied in true academic language: "... we do not claim that this experiment proves human chorionic gonadotrophin (HCG) causes regeneration of the spinal cord. We simply state that 'the presence of nerve fibres in the bridging tissue certainly suggests that HCG might be useful in regeneration of nerve fibers of the spinal cord.'"

They also pointed out that the "control group" of rats not given HCG had no recovery at all, and that "the significant recovery we see in the HCG-treated rats ... certainly suggests a strong possibility that HCG did in fact, have some role in the functional recovery of spinal cord sectioned rats." In this reply to the chairman of the editorial board, no mention was made at all about the two total paraplegic humans who experienced partial functional recovery in 6 weeks with rather heroic – but safe – quantities of HCG. No mention at all was made that these two men were up and walking with crutches at an unspecified later date.

When one of the authors of this 1983 research paper was contacted inquiring whether had been any further follow-up in those or other human cases, he wrote back that he had left the University of North Dakota School of Medicine for another academic post, so these two patients were "lost to follow-up."[4] Although there's no way to prove it, it would be no surprise at all to learn that this "heretical" research report – HCG enabling neuronal regeneration and recovery from a transected spinal cord (animals) and "up and walking with crutches" after paraplegia (humans) – had something to do with that particular academic career move.

**Male Infertility Reversed with HCG**

Let's look at another recently discovered therapeutic application of HCG, an application that will lead us to understand how HCG may work to help stimulate healing in spinal cord and other nervous system injuries.

In 2004 and again in 2009, Belgian and Swiss researchers published the case of a 30-year-old man whose wife was unable to conceive a child.[5,6] He had underdeveloped testicles (for the

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technically inclined, the researchers reported a volume of 8 milliliters). He agreed to a testicle biopsy. Observed under a microscope, the cell structure of the testicles was found to be very immature. The sperm count was very low and those that were present were very immature also.

His testosterone level was very low (0.3 nanograms/milliliter, normal range 2.5–10.0 nanograms per milliliter). The immediate cause of his low testosterone was his undetectable luteinizing hormone (LH). LH is a pituitary hormone that stimulates the "LH receptor," which in turn stimulates the testicules to produce testosterone.

By contrast, his estradiol was low normal (26 nanograms per liter, normal 10 to 70 nanograms per liter). His follicle stimulating hormone (FSH) – the pituitary hormone that stimulates sperm formation and maturation in men and estrogen in women – was high (23 mIU per milliliter, normal range 1.0–8.0 mIU per milliliter).

In both genders, when there is little to no response to FSH, our pituitary glands make more – often much more – than usual to try to force a response. In this man's case, his testicles were making very few sperm, and no mature ones, which would likely explain why his FSH level was high – in effect "screaming loudly" – to try to encourage more sperm production.

But the real cause of his problem was discovered to be a DNA mutation that rendered LH biologically and immunologically inactive. The effects of this mutation added up to undetectable LH, small testicles, very poor sperm numbers, no mature sperm, and no pregnancy for his wife.

After treatment with HCG 1500 IU 3 times a week for a month, then 5000 IU weekly for two years, his testicle volume had nearly doubled, from 8 to 14 milliliters. His testosterone had increased to a normal 7 micrograms per liter, and his FSH had decreased to normal at 2.3 mIU per milliliter.

Another testicle biopsy showed significantly increased sperm numbers with many completely matured. Using his sperm, physicians were able to help his wife conceive. She delivered a male infant, who fortunately did not inherit his father's DNA problem and was found to have normal (for an infant) testosterone, FSH, and LH levels.

A man with no LH, and therefore almost no testosterone, and no mature sperm is treated with HCG and has his testosterone normalize and his testicles mature and begin to produce mature and functional sperm that help to conceive a previously inconceivable (pun intended) child. How could this happen?

### HCG Stimulates Testosterone Production

The researchers wrote: "Although rare, isolated LH deficiency due to inactivating mutations of the LH-subunit gene is a useful illustration of the precise role of LH in testicular maturation and function in humans. Furthermore, it also provides a good example of the clinical efficacy of LH receptor stimulation using hCG." Put more briefly, both LH and HCG stimulate the LH receptor, which in turn results in increased testosterone.

As men age, their LH and testosterone levels start to naturally decline. Research shows that HCG can help stimulate testosterone production in men as they get older.

Forty men ages 65 to 80 years old participated in a double-blind, randomized, placebo-controlled trial using HCG, 5000 IU twice weekly (or a placebo injection) for three months.[7] The group using HCG had a stable increase of 150% in total and free testosterone. Their lean body mass increased an average 2 kilograms (4.8 pounds), fat mass decreased by an average 1 kilogram (2.4 pounds), for a net loss of 1 kilogram (2.4 pounds).

However, the HCG-using group also had an increase in total estradiol by 150%. This increase might explain why the researchers found no increase in muscle strength or sexual activity in the HCG group. Although the researchers noted the possibility that hyperaromatization (excess transformation of testosterone to estrogen) might be the cause of the equal increase in total testosterone and total estrogen which might explain the lack of increase in muscle strength, they didn't check this possibility.

If you're a man interested in trying to raise your own testosterone level without using testosterone itself, make sure to work with your doctor to monitor your testosterone and your estrogen levels. If your estrogen level goes too high, then perhaps you should be tested for insulin resistance, the major cause of hyperaromatization. (For more details about hyperaromatization of testosterone, see *Nutrition & Healing* August 2013.)

The same researchers also investigated the effect of the twice-weekly HCG injections on sensitivity to insulin and related lipid measurements in these same men.[8] Those receiving the HCG had no significant improvement in insulin sensitivity or HDL cholesterol, but there was a significant reduction in total and LDL ("bad") cholesterol, as well as triglycerides.

### HCG Boosts Libido and Erectile Function

Have you ever read that HCG has been reported to increase erectile function and sexual desire for some men? No, it wasn't 100% effective, but you'd think that research finding would have been all over the news, especially since the article was published in a major medical journal, *Urology*.[9] Since the research was published all the way back 1987, the word *should* have gotten around by now. But since HCG isn't patentable it of course will never get the attention that conventional drugs do – but I digress.

Researchers actually reported two randomized studies in the one journal. In the first study, termed preliminary, twenty-nine men with ED (in pre-Viagra 1987, it was called impotence) took either HCG injections (5000

IU twice weekly) or injections of testosterone propionate (which is still in widespread use in 2013), 50 milligrams twice weekly. The HCG outperformed the testosterone, with 49% responding versus 28% in the testosterone group.

The second study involved 45 men, again randomized, this time HCG versus placebo. Both took twice-weekly injections, placebo or 5000 IU HCG. HCG administration was associated with significant improvement in ED in 10 of 21 men (47%). The placebo was successful in only 3 of 24 men (12.5%).

The researchers also noted a significant increase in testosterone levels in all 21 men who took the HCG injections, but no increases in the men who took the placebo injections. (There was no measurement reported of estrogen in either group.) Since the entire HCG group had a significant increase in testosterone, but only 47% had a significant improvement in ED, it's reasonable to assume that HCG improves ED in some men in a non-testosterone-related way.

### HCG Works for Women, Too

For women, progesterone is secreted when the LH receptor is stimulated. Progesterone supplementation using rub-in creams or capsules can be very helpful for a wide variety of symptoms that occur when a woman's progesterone level starts to decline. Since HCG stimulates the LH receptor, it can relieve the symptoms caused by a progesterone shortage in the same way.

Although there is no controlled research on this yet, it definitely works in clinical practice. For younger women suffering PMS symptoms or women suffering with menopausal symptoms and who want to lose weight, an HCG diet (strict or modified) with its accompanying HCG injections could be a "two-fer", increasing progesterone, reducing PMS and some menopause symptoms, as well as promoting weight loss.

There's also no controlled research about another effect of HCG injections that I've observed many times: significant increases in human growth hormone (measured in consecutive urine specimens collected for 24 hours) in both men and women during the use of HCG injections. Of course when HCG was stopped, HGH levels decreased to pre-HCG levels.

### HCG's Role in Nervous System Growth

Obviously HCG is much more than just a pregnancy hormone. As Nature and creation are very conservative, it shouldn't be a big surprise that the research on HCG stimulating the LH receptor takes us right back to where this started, the regeneration and healing of nerve cells and the brain.

In the 2007 report mentioned above, the researchers observed that HCG has an effect on neurons and glial cells, the cells which – among other things – support neurons and their functions.[1] They wrote: "... HCG promoted nerve regeneration *in vivo* and neurite outgrowth and survival of primary neurons *in vitro*." In plain English, nerves and nerve projections (neurites) were regrown in live animals and survived better in cell cultures.

In the 1983 research about animals recovering from spinal cord injury, the researchers wrote: "HCG in pregnancy is highest during the first trimester when major developmental changes in the nervous system take place, suggesting the possibility that HCG may have some role in the growth of the nervous system."

With the advantage of more than two additional decades of HCG research, the authors of the 2007 report echoed this prediction when they wrote: "... These findings imply a potential role for HCG ... in the development, maintenance, and regeneration of the mammalian nervous system." Ongoing HCG research confirms that the potential role that was hinted at in 1983 is likely to be true.

How can HCG help to grow, maintain, and even regenerate the ➤

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nervous system? Or, as scientists would ask, what is the mechanism? A major part of this mechanism is now established. Remember that in the research about recovery of testicular function with HCG noted above, we learned that that the receptor for HCG is the same as the receptor for LH. In fact, it's even been formally renamed the LH/CG-R (luteinizing hormone/ chorionic gonadotropin receptor).

Researchers have confirmed that LH/CG-R receptors are also located on the surfaces of cells all over the brain and other neural structures, including the hypothalamus, cerebral cortex, hippocampus, brain stem, pituitary gland, cerebellum, retina, the spinal cord, and ependymal regions. (The ependymal regions are the fluid-filled regions of the brain and the spinal cord. They're lined with ependymal cells, a type of glial cell which – among other things – secretes, circulates, and absorbs cerebrospinal fluid.)

It would be entirely illogical – even irrational – to think that these receptors are located on all of these cells and areas of the nervous system and yet have no function. Obviously some of those functions are the development, maintenance, and regeneration of the human brain and nervous system. The rat studies and two human cases noted above appear to be evidence of that.

So if it's the same receptor (LH/ CG-R), why can't LH alone do the job? Researchers are just beginning to understand that even though it's the same receptor, HCG and LH stimulus *do not evoke exactly the same response.*[10] The LH/CG-R receptor response to LH or HCG may be the same in some cells bearing it, differing in others, and overlapping in yet others. Much more research is needed to know all the details.

### HCG Holds Hope for Neurodegenerative Disease

But the report that two paraplegic men were walking with crutches after HCG treatment, and that all spinal cord transected rats regained bowel and bladder control and the ability to walk (4 normally, 8 imperfectly) makes it likely that – at least in neurons – HCG can stimulate the LH/CG-R receptor to help regenerate damaged neurons.

And if HCG can stimulate even *completely transected* (cut totally across) spinal cords to repair, then it may also be able to help neurons affected by neurodegenerative diseases to repair themselves, or at least slow the progress of the disease.

Of course there's no way to know for sure; no research about HCG and neurodegenerative disease has been reported, and there are only the 1983 and 1990 reports about spinal cord injury, none about brain injury. Even if this research were to start today, so-called authorities would tell us – as they always do – that "results won't be known for years."

But if you or a loved one has a had brain or spinal cord injury that's not yet recovered (especially a recent one) or an ongoing neurodegenerative disease, why not take this article to a physician skilled and knowledgeable in natural medicine, and discuss giving regular HCG injections a try? It's safe; after all, we all had exposure to it for approximately nine months when we were very vulnerable fetuses, during which time it did us no harm at all.

Of course it may not help, either. But the research we do have – especially those experimental animals walking again, and the two paraplegic men "now able to walk with the help of crutches" after HCG treatment – gives us real reason to hope. And since little else is being done to repair neurologic injury and neurodegenerative disease that's actually helping, and side effect free, it's certainly worth a try.

Jonathan V. Wright, MD, has degrees from both Harvard University (cum laude) and the University of Michigan. More than any other doctor, he practically invented the modern science of applied nutritional biochemistry, and he has advanced nutritional medicine for nearly three decades. Dr. Wright is credited with introducing the nutritional remedy for benign prostate disease (BPH), the first successful treatment to reverse macular degeneration, the safe medical use of DHEA therapy, natural hormone replacement therapy for women, and many other revolutionary natural cures.

To learn more about Dr. Wright's seven-volume *Library of Nutritional Cures* and his newsletter *Nutrition & Healing* and/or to subscribe to the newsletter, please visit www.wrightnewsletter.com, or call 888-213-0685.

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# Inflammation and the Neuroimmune Systems

## by Decker Weiss, NMD, FASA

Twenty-five years ago, two Scandinavian scientists revived a century-old hypothesis: Chronic infections and inflammation are positively correlated with vascular disease.[1]

Fast-forward to the present, and today a multitude of studies support this assumption through the statistical measurement of comorbidities. For example:

- According to the American College of Rheumatology, rheumatoid arthritis nearly doubles the risk of a heart attack within the first 10 years of diagnosis.[2]
- A study analyzing data from more than 150,000 patients with irritable bowel disease (IBD) found a 10% to 25% percent increase in the risk of stroke and heart attack.[3]
- Patients with psoriasis appear to be twice as likely to carry risk factors for heart disease, such as diabetes and metabolic syndrome.[4]
- After two decades of research, the connection between periodontal disease and cardiovascular disease (CVD) has been confirmed.[5]

In addition to these chronic conditions, inflammation is also associated with humankind's second-largest cause of mortality: cancer.[6] As early as 1863, after finding immune cells in tumor samples, the German pathologist Rudolf Virchow discovered that cancers tend to occur at sites of chronic inflammation.[7,8] More recently, in 2007, a meta-analysis demonstrated an increased risk of small bowel, colon, extraintestinal cancers, and lymphoma in patients with Crohn's disease. [9]

In another interesting study, a team of researchers from Imperial College in London and Harvard University delved into the statistical health records of 50,000 patients, which were collected over a period of 21 years. The researchers discovered that among those patients with periodontal (gum) disease, there was a 33% increase in the risk of lung cancer, a 50% rise in the risk of kidney cancer, and a 30% higher incidence of blood cancers such as leukemia.

Additionally, in patients with chronic advanced gum disease, researchers found patients had *an additional fourfold increase* in head and neck cancer for each millimeter of related bone loss around teeth.[10] (As this study illustrates, your dentist's oral care reminders may go beyond saving your teeth, to in fact saving your life!)

From 1863 in Germany, to 1989 in Scandinavia, and continuing to the present day, the scientific research overwhelmingly indicates that inflammation is at the root of many life-threatening illnesses. But how can we determine which patients are at risk? Which person has just a bad tooth, versus a bad tooth and an increased risk of cancer? Are there measurable biomarkers that can serve as predictive tools?

The answer is yes, if you utilize the science of neuroimmunology – the study of neurological and immunological changes that result from the interaction of the nervous and immune systems. Backed by two decades of research and clinical study, neuroimmunology provides a more comprehensive understanding of the physiological and biological interactions underlying complex chronic diseases.

All diseases of the nervous system affect immune functions, and all diseases of the immune system affect the nervous system. The nervous and immune systems use neurotransmitters as chemical messengers to maintain a constant crosstalk. When neurotransmitters deplete, pro-inflammatory cytokines are produced. In contrast, as neurotransmitters are balanced, central control of inflammation is returned.

This is why research scientists and clinicians rely upon a neuroimmunological panels of tests. When performed properly by a CLIA-certified lab (such as Pharmasan Labs in Osceola, Wisconsin), neuroimmunology lab assessments give health-care providers an opportunity to assess a patient's neuroinflammation levels and directly address the underlying issues, before damage becomes extensive.

**Case Study: J. S.**

J. S. is an athletic, 62-year-old white female who eats a healthful diet. Still, she has a history of irritable bowel, sports injuries, and chronically bleeding gums. J. S.'s lab work was normal (including lipid levels within ranges of American Heart Association guidelines). The only exception was a slight elevation in three markers: oxidized LDL, myeloperoxidase, and CRP-HS. ➤

Her treatment consisted of statin medication (lipids and CRP-HS), several botanical anti-inflammatories, frequent dental work that required antibiotics, and a fish oil product. J. S. was not responsive to traditional or alternative treatments aimed at getting her inflammation under control. Frankly, her case was a bit of a mystery.

I decided to look at the relationship between J. S.'s central nervous system, her immune system, and her levels of inflammation. Quickly it was evident that at J. S.'s core, she was a very different person:

Taurine: low
Dopamine: low
DOPAC: high
Histamine: high
Glutamate: high
GABA: low
Interleukin 10: low
Interleukin 6: high
TNF-α: elevated

The interpretation of the labs indicated chronic inflammation as judged by the levels of two key neurotransmitters (histamine and glutamate) and the cytokine measurements (all of the listed cytokines).[11] In addition, the IL-6 elevation may help explain why the CRP-HS and TNFα are increased, as this cytokine can drive these markers up and increase the risk of plaque instability or myocardial infarction.[12] The elevated DOPAC and oxidized LDL may imply that free radical oxidation is also adding to J. S.'s risk of a life-threatening disease.[13,14]

However, the most important clinical interpretation is that of low sympathetic drive. The decreased levels of catecholamines or low sympathetic drive can lead to a lack of control of PGE2 and COX-2.[15] This may be caused by an imbalance in the anti-inflammatory and inflammatory cytokines, thereby affecting the neuroimmune systems.[16] Clinically, this can translate to inflammation and poor wound healing.[17]

Norepinephrine – the main neurotransmitter responsible for sympathetic drive – is released directly into the blood from the peripheral and the neurosympathetic fibers, affecting the locus coeruleus in the brain.[18] The locus coeruleus can be damaged by free radical oxidation (hence the elevated DOPAC and oxidized LDL), while stress can decrease the adrenal medulla's production of norepinephrine and cortisol.[19,20]

Among the locus coeruleus's many functions is the responsibility for mediating many of the sympathetic effects during stress, suppression of the parasympathetic system as needed, and activation of the

corticotrophin-releasing factor from the hypothalamus.[21] This is important because norepinephrine influences inflammation via the cytokine system and through the hypothalamic-pituitary-adrenal axis and cortisol.[22]

We have now connected the central nervous system to immune and inflammatory control not only through the CNS but also throughout the brain (hypothalamus and pituitary) and into both parts of the adrenal gland. This supports the theory that the "core" of inflammation is in fact the central nervous system.

After interpreting these results, I added to the patient's regimen tyrosine, SAMe, and taurine, along with serotonin and theanine (to support the conversion of glutamate to GABA). The statin was removed due to concerns of an added inflammatory effect. Ubiquinol and a broad-spectrum, fat-soluble antioxidant (including A, beta carotene, D, D3, K, K2, high gamma and mixed tocopherols) was added. In order to suppress oxidation of lipids and protect the locus coeruleus, 600 mg of alpha-lipoic acid was added per day. An alkalinizing/anti-inflammatory diet with healthful oils and stress-reducing hot yoga were likewise recommended.

Within 2 weeks, J. S.'s neurotransmitters and cytokines showed signs of normalizing. Within 6 months, her clinical symptoms resolved, and her CRP-HS, oxidized LDL, and myeloperoxidase normalized.

### The Future of Neuroimmunology

I foresee a day in the not-too-distant future that we practitioners no longer take a "best guess" at diagnoses and best options for nutritional supplementation. Routinely, neurotransmitter testing will be used in order to accurately assess neuroinflammation and address patients' underlying issues. All treatment will be based on the positive movement of lab results and the real data of clinical science.

I predict that in the coming years, addressing neuroinflammation will be the fastest-growing sector of the natural-medicine industry. As health-care providers become increasingly aware of the value of testing and supplemental nutrition to rebuild healthy immune and inflammatory function, the market will explode.

Working at the "core" of issues – that is, resolving a patient's presenting clinical symptoms in a way that helps prevent future life-threatening issues – sounds almost too good to be true. But rest assured that it isn't – it's just the emerging science of neuroimmunology.

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Decker Weiss, NMD, FASA, is the first naturopathic physician to complete a conventional internship, residency, and fellowship in a conventional medical system. Dr. Weiss trained in the Columbia Hospital system, the Arizona Heart Hospital, and the Arizona Heart Institute. Founder of the Scottsdale Heart Institute and the Center for Neuro-Endo-Immunological Cardiovascular Studies, Dr. Weiss consults with NeuroScience Inc. on practitioner medical education.

# Inflammation and the Kidneys

## by Dr. Jenna C. Henderson

Inflammatory conditions of the kidneys can present many challenges, whether part of a systemic condition such as lupus or a condition specific to the kidney such as IgA nephropathy or focal segmental glomerulosclerosis (FSGS). These conditions are often resistant to treatment and require long-term strategies and lifestyle changes to manage. While many patients will quickly make progress in reducing kidney inflammation, ongoing diligence is required to bring these conditions into full remission.

While there are specific therapies targeting different types of kidney inflammation, here are some general guidelines that can help reduce inflammation in the kidneys. Protein in the urine is key to recognizing inflammation in the kidneys. There can be varying degrees of edema, depending on how much sodium is consumed, but foamy urine is a bad sign and indicates inflammatory changes in the kidney. Where there's smoke, there's fire, and foaminess of the urine is a clear indicator of inflammation. Simple steps can help quell the inflammation in the kidneys, and patients will be able to gauge their progress by noting change in their urine.

Mainstream treatment of nephritis generally involves the use of ACE inhibitors or ARBs to reduce blood pressure. Patients are also given statins and steroids or other immune suppressants. Generally there are no dietary guidelines given until the nephritis has progressed to end-stage renal disease and they are facing the prospect of dialysis.

As the kidneys are one of the fattiest tissues of the body, dietary intervention for nephrotic syndrome should aim to first eliminate all harmful fats from the diet. All synthetic fats such as margarine and hydrogenated oils must be stopped. Cooking methods should include baking and steaming but not frying or grilling. Omega-6 fatty acids in the diet will also increase inflammation.[1] Kidney patients do well eliminating all cooking oils high in omega-6 fatty acids, including canola, corn, vegetable, sesame, safflower, sunflower, and soybean oil. Instead, I advise patients to use flaxseed oil raw, olive oil raw or low temperature, macadamia oil for medium temperature, and, if they must use high heat, butter or coconut oil.

Although many kidney patients eat nuts as they shift to a more vegetable-based diet, the high levels of omega-6 fatty acids in most nuts (with the exception of walnuts and macadamias) do not make them good dietary staples. I do not recommend almond milk or soy milk as substitutes for dairy in the diet. If meat and dairy products are part of the diet, grass-fed products will have a much more favorable omega-6 to omega-3 ratio.[2] Wild-caught salmon and mackerel are also helpful additions to the diet.

Therapeutic use of omega-3 fatty acids can help reduce inflammation and proteinuria.[3] Patients will often note very quickly a marked decrease in foaminess of the urine. The addition of flaxseed oil to the diet can be extremely useful. These products often come in a clear version and a high-lignan product. I advise patients to choose the clear flaxseed oil, as high-lignan products are higher in phosphorus. Fish oil products can also help arrest the continued leakage of protein. These products should be an EPA/DHA blend. Krill oil should be avoided, as these products are also high in phosphorus. Cod liver oil is not recommended because it is high in vitamin A, and patients with nephrotic syndrome often have elevated levels of vitamin A.[4] Algae products are also not desirable for nephrotic syndrome, as they do not have a favorable balance of fatty acids, with a much higher content of DHA compared with EPA. Dosing of omega-3 supplements can vary depending on the degree of proteinuria. Often patients can note an immediate difference in foaminess of urine, but urine strips can help quantify a decrease in albumin in the urine.

Besides reducing protein in the urine, therapy for kidney inflammation should address damage to the parenchymal tissue of the kidneys. As nephrotic syndrome progresses, often the kidney tissue itself becomes progressively scarred. Coconut oil can help arrest this insidious breakdown of the nephrons in the kidney and preserve functional renal tissue.[5] Many patients are hesitant about

incorporating a saturated fat into their diet; however, the kidneys are the largest stores of saturated fat in the body and coconut oil can be an essential addition to the daily diet.

Another potentially useful fatty acid for the nephrotic patient is conjugated linoleic acid (CLA). While this trans fat does not stop proteinuria directly, it may help prevent the cachexia of nephrotic syndrome, enabling the patient to retain lean body weight and extending survival.[6] Found in grass-fed red meat, CLA will probably be low in the nephrotic patient's diet and supplementation may be helpful. With advanced renal disease, often the patient will experience elevated parathyroid hormone (PTH) and a loss of bone density. CLA again may be of benefit by reducing PTH.[7]

A low-protein diet is of benefit to reducing protein loss in the urine. However, overzealous patients should be advised to avoid self-induced kwashiorkor. A loss of muscle mass is associated with poor survival in kidney patients.[8] As a general rule, I advise patients to consume 0.8 g of protein per kg of body weight. For children or those who have already lost muscle mass, 1.0 g of protein per kg of body weight, and those with advanced kidney disease who are close to needing dialysis, 0.6 g of protein per kg of body weight per day. These numbers may also be adjusted if the patient is carrying more adipose tissue.

The semivegetarian diet is usually a good option for kidney patients. Rice and beans can be good staples, but to avoid chronic amino acid deficiencies, the diet should include a small amount of animal protein.[9] This may be especially true for kidney patients dealing with anemia. Hemp protein is also a good choice for patients with nephrotic syndrome. With a high omega-3 content, it may also may slow the progression of kidney disease and prevent the secondary heart enlargement that often accompanies chronic kidney disease.[10]

Cleaning up the diet with chronic kidney inflammation involves removing all processed food, particularly hydrogenated oil, high-fructose corn syrup, and phosphoric acid. Genetically modified foods, especially GMO corn, can aggravate the kidneys.[11] Fast foods are especially laden with phosphate-based preservatives and must be eliminated.[12] Artificial sweeteners are also toxic to the kidney.[13] Gluten may or may not play a role in kidney inflammation. Taking gluten out of the diet is clearly helpful for IgA nephropathy, but may not have much impact on FSGS or other types of kidney inflammation.[14]

Many nephrotic patients rely on coffee to deal with the chronic fatigue of renal disease. However, coffee will increase inflammation and proteinuria. This is especially true for patients with FSGS.[15] Most kidney patients will find that their urine looks considerably less foamy after cessation of coffee. This effect of coffee is most likely not due to caffeine alone, since green tea, with antioxidant properties, will help reduce proteinuria.[16]

High-antioxidant foods that I recommend to patients for kidney support include blueberries, grapes, cherries, pomegranate, green tea, hibiscus tea, lemons, apples, and pears.[17-20] Celery can help with blood pressure and reduce uric acid. Beet juice is a source of antioxidants and can help blood pressure.[21] Fermented foods can also help the kidneys indirectly by promoting a healthy gastrointestinal tract.

Cholesterol is often exceedingly high with nephrotic syndrome, as the liver responds to the loss of protein in the urine by producing endogenous cholesterol. Dietary attempts to minimize cholesterol will be of little consequence unless the root cause of proteinuria is addressed. Standard treatment of hypercholesterolemia in the nephrotic patient is a statin medication, despite the nephrotoxicity of these drugs.[22] An alternative to statin medications is berberine, which not only lowers cholesterol dramatically but also has a protective effect on the kidneys.[23,24]

Other medications that can aggravate the kidneys include proton pump inhibitors, NSAIDs, antibiotics, and immune suppressants. Offering the patient alternative solutions to reduce reliance on these drugs can help reduce the stress on the kidneys. Often patients need to understand that the stomach is supposed to be acidic and this is the medium wherein proteolytic enzymes work best. Apple cider vinegar or aloe vera can help with the symptoms of acid reflux and may reduce the need for proton pump inhibitors.

Given their high degree of nephrotoxicity, patients should be encouraged to step down from NSAIDs whenever possible.[25] Reliance on NSAIDs for musculoskeletal pain can often be reduced with an anti-inflammatory diet. Patients should also be aware of natural analgesics and acupuncture for pain modulation. Aspirin can also be a nephrotoxin despite the benefit of antiplatelet activity.[26] Renal patients can safely obtain the anticoagulating effects of fish oil or ginger instead.

Ginger may also benefit the renal patient who finds it necessary to use antibiotics. Gentamicin can induce inflammation and necrosis in the kidney. Ginger extract has been shown to reduce kidney damage and restore normal levels of creatinine, BUN, and uric acid with gentamicin.[27]

Immune suppressants are often used in the treatment of nephrotic ➤

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syndrome. Patients are usually eager to step down from steroids, given the cushingoid effects and concerns about long-term bone density. Calcineurin inhibitors, including cyclosporine and tacrolimus, are also used to reduce inflammation in the kidneys. While these medications can reduce proteinuria, they are also nephrotoxic and increase rates of malignancy. If the patient uses this approach for intractable proteinuria, naturopathic medicine can be a useful adjunct, as green tea and garlic can reduce the nephrotoxicity of these medications.[28,29]

Infections are commonplace among patients with nephrotic syndrome, be they UTIs, URIs, or skin infections. Not only are many patients treated with immune suppressants, but low albumin in the blood will also suppress immunity. Zinc, an important mineral for immunity, is lost in the urine with nephrotic syndrome.[30] Supplementing zinc will not only support the immune response, but it may also actually help prevent relapses after remission has been achieved.[31]

I do not recommend vaccination to kidney patients and in practice have had many patients note an aggravation of proteinuria immediately following a vaccine. A study of a murine model of IgA nephropathy looked at the effects of *Saccharomyces boulardii* on this condition. In order to test with a control and treatment group, inflammation had to be induced in both populations. And the inflammation was directly induced with a vaccine.[32] Whether this effect is due to activation of the immune system directly or from adjuvants, I urge kidney patients to educate themselves on both sides of this controversy. Nephrologist Dr. Suzanne Humphries has done extensive research on this topic and I often refer patients to her work.

Local or systemic inflammation often stirs up the immune system to aggravate proteinuria. Many patients with underlying inflammation in their kidneys report that during a cold or sinus infection, their urine comes out especially foamy. Musculoskeletal injuries can have the same effect of exacerbating proteinuria. Supplements of quercetin, curcumin, bromelain, and other enzymes are useful to immediately reduce the foaminess of the urine. Modified citrus pectin can also help reduce the inflammation of kidney disease.[33]

Long-term lifestyle changes can help address the inflammation associated with nephrotic syndrome. Lack of sleep is one of the best predictors of proteinuria.[34] Administering exogenous melatonin can not only reduce proteinuria, but can improve kidney function.[35] According to Traditional Chinese Medicine (TCM), there is a relationship between sleep and the kidneys, and stress in the kidneys may be noted with dark circles under the eyes. Getting to bed early is an essential part of a healthful lifestyle for kidney patients, and often a difficult challenge for many who struggle with insomnia.

Weight loss is often essential to reduce stress on the kidneys. With a greater body area to service, the kidneys will be chronically overworked, and obesity can result in hypertension. Even if the patient is not diabetic, the elevated serum glucose and insulin will increase kidney stress. Cytokines secreted from adipose tissue will also increase inflammation.

In TCM the nephrotic patient is characterized as being cold and damp. Many kidney patients have noted to me severe cold intolerance and that their urine looks much foamier when they feel chilled. Eating cooked food in season and dressing warmer than would seem necessary is often helpful. Moxabustion can also be a helpful adjunct therapy.

With dietary and lifestyle changes, it is possible to reduce inflammation and prevent irrevocable damage to the kidneys. If the inflammatory process is caught early enough, the patient will be able arrest further damage to the kidneys. Even very late in the process, a naturopathic approach to inflammation may delay the need for dialysis.

Dr. Jenna Henderson is a graduate of the University of Bridgeport College of Naturopathic Medicine. Her practice, Holistic Kidney, addresses the unique needs of renal patients at all stages, including dialysis patients and transplant recipients. Her articles have been published in *Natural Medicine Journal* and *Naturopathic Doctors News & Reviews*. She has lectured across the US to both patient groups and professional groups. She has appeared on several radio shows and cohosted the program *Improve Your Kidney Health*. She is currently at work on a guidebook on natural medicine for transplant patients.

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# Leaky Gut Syndrome: A Modern Epidemic with an Ancient Solution?

**by Douglas A. Wyatt**
**Center for Nutritional Research**

One hundred million Americans suffer from chronic pain, which equates to approximately half of the adult population.[1] These are frightening statistics, but what's even more frightening is that the majority of these same people are suffering from chronic diseases caused by leaky gut syndrome. Taking pain medication, whether over-the-counter NSAIDs or prescription drugs, has unwittingly condemned them to an existence with leaky gut and all of its ramifications. Compounding the problem is the prolific and unnecessary use of antibiotics, which led to the creation of "superbugs," antibiotic-resistant pathogens populating the gastrointestinal tracts of the naïve. This deadly combination of pain medications and antibiotic abuse has created a public health crisis, the likes of which physicians are certainly ill prepared to treat and definitely unable to diagnose responsibly.

That's the bad news about leaky gut syndrome. The good news is that we *do* have a solution, one that has been around long before penicillin was discovered by Sir Alexander Fleming in 1928 and before Felix Hoffmann first synthesized aspirin for Bayer in 1897. In fact, we have not scientist nor medical doctor nor herbalist but Mother Nature to thank for this amazing gift. This magical, first food of life for humans and all mammals is colostrum, and it's been around since the beginning of mammalian life on this planet.

I discovered bovine colostrum for my ailing wife more than two and a half decades ago. My wife suffered with no functional immune system after having her thymus gland irradiated as a child. This was common practice in the 1950s, and it demonstrated to me just how important the human immune system is to our healthy existence and just how little physicians really understand about it. Thanks to a colleague who was a naturopathic physician, bovine colostrum turned my wife's life around completely. No longer faced with the absolute certainty of her death, I have vigorously pursued research to reintroduce this biologic nutraceutical back into human use ever since.

Hippocrates said that all disease begins in the gut. Modern medicine is beginning to understand and accept the concept of immune and gastrointestinal health's being interdependent, yet the majority of practitioners are still in the dark about colostrum. A million years of evolution has taught us the importance of passive immunity; it's the reason that all mammals, except humans, can exist at all. This astute conclusion is something that my mentor, medical anthropologist Dr. Robert Heinerman, taught me. Rather than looking at colostrum as just a substance with a lot of wonderful chemicals in it. Dr. Heinerman gave me a way to view colostrum through the eyes of a sociologist and an anthropologist with all the history of humankind and the origins of the very first mammals.[2]

**What is Leaky Gut Syndrome?**

The term *leaky gut syndrome*, or *leaky gut,* identifies an increasingly pervasive health disorder in which the lining of the small intestine is more permeable than it should be and becomes subject to inflammation by various irritants. The abnormally large spaces allow entry of toxic material into the bloodstream that would, in healthier circumstances, be repelled and eliminated. The gut becomes "leaky" in the sense that bacteria, viruses, fungi, parasites and their toxins, and undigested foods such as proteins, nerve and connective tissue, fat, and waste normally not absorbed into the bloodstream in the healthy state pass through a damaged, hyperpermeable, porous, or leaky gut. When these foreign substances enter the bloodstream, the immune system goes into reaction mode and begins creating antibodies against its own tissues. Chronic overstimulation of the immune system leads to chronic inflammation and disease.

All newborn mammals have holes in the stomach and small intestines, by design, so that colostrum can freely enter the bloodstream. Every antibody produced against every

pathogen the mother has encountered in her lifetime, and her own mother's lifetime, is transferred to her offspring. Humans receive some passive immunity in the womb, yet the transfer continues with early and extended breast-feeding. Colostrum also contains the epithelial and epidermal growth factors that close the holes within two days after birth, such that the infant no longer has a leaky gut. Without a doubt, this underscores the importance of breast-feeding; and for me, it was the foundation of my hypothesis that if colostrum can heal leaky gut in a 2-day-old infant, surely it can do the same for an 80-year-old adult.

To further test my hypothesis, I instituted animal trials with pigs. In a double-blind study, we proved that bovine colostrum not only prevented GI damage caused by excess stomach acids but also healed existing damage.[3] Additionally, the colostrum-fed pigs had a 20% increase in the surface area of the small intestine as measured by villus height. This correlated to an improvement in the nutritional absorption of beneficial and critical nutrition. Not only did the pigs grow faster and healthier, they had more lean muscle mass and less fat and there was no need for farmers to use antibiotics. This study was a model for ulcers in humans, and the remarkable results led to the undertaking of human trials. My goal was to pioneer colostrum back into human consumption, and so I needed to introduce colostrum into the research arena with the top GI specialists taking the lead. My call was answered, and Dr. Raymond Playford at the Imperial College School of Medicine in London led his team, first with animal models of NSAID-induced gut damage, and later with humans.[4-6] They found that taking colostrum reduced the acute NSAID-induced increase in small-intestinal permeability. This research began in the late 1990s, and interest was high due to increasing use of NSAIDs among arthritis and chronic pain sufferers. Over the next two decades, our research evolved into other areas related to intestinal permeability, most notably utilizing the proline-rich polypeptides (PRPs) derived from bovine colostrum to eliminate HIV-associated diarrhea caused by opportunistic infections for which antibiotics had no effect.[7] PRPs are the most powerful modulators of immune response and regulate the cytokine response that causes inflammation in the body.[8]

**The Scourge of Pain Medications and Antibiotics**

We know that prescription pain medications, not just the OTC variety, cause bleeding and holes in the stomach and in the intestinal lining. We know that the risk of death in people taking NSAIDs for more than two months is 1 in 1200.[9] We also know that abdominal pain is the most common GI symptom that prompts a clinic visit, and in an effort to relieve that pain, physicians prescribe steroids which further exacerbate the destruction of GI tissue.[10] We know that 100 million people are taking pain medications for extended periods, whether they obtain them through legal or illegal means. That's half of all adults in the US, and so I'm confident that we can say that a minimum of 100 million people have leaky gut syndrome. There's no consumer warning label on OTC pain relievers that says "Extended use causes leaky gut syndrome." Medical schools aren't teaching physicians about the GI dangers of chronic use of pain medications, so when doctors write a prescription for pain meds, they're unaware that they're writing a prescription for leaky gut syndrome. Sadly, it's a case of a little knowledge being a lot dangerous.

Pain medication is the most utilized drug category in the US and also the most abused, followed closely by GI drugs. It's not surprising at all, since the two are interconnected in a vicious cycle of leaky gut syndrome. The first creates the problem, and the second masks and exacerbates the problem. So what really needs to be done to stop this epidemic is for physicians and medical practitioners to offset the effects of the flawed rational and flawed treatment of the past. The Hippocratic oath first says, "Do no harm." How can prescribing drugs that create more harm to the gastrointestinal tract possibly provide no harm?

We also know that nearly 80% of all pathogens enter the body through or attached to mucosal surfaces, the largest of which is the gastrointestinal tract. We know that people are bringing infections into hospitals, and others with compromised immune systems are taking them home. We know that many patients are discharged from the hospital sicker than when they entered and often dying later. Approximately 125,000 Americans die annually from hospital-acquired, gut-based infections, of which *Clostridium difficile* (*C. diff.*) and methicillin resistant *Staphylococcus aureus* (MRSA) are the most prevalent and most difficult to treat. I've calculated the 125,000 figure based on toxicologist John T. James's estimate that 440,000 people die annually from hospital infections and medical mistakes, and by taking the couple of states that actually report hospital-acquired infections (HAIs) and extrapolating across the US.[11] Interestingly, *Consumer Reports* has been a champion of requiring states and the federal government to make reporting of HAIs a requirement.[12] We're slowly moving in that direction, but reporting is not readily available to consumers.

Consumers and some physicians are ignorant to the damage that antibiotics cause in the gastrointestinal tract. Prescribing antibiotics for gut-based pathogens creates more problems than it solves; it destroys both good and bad bacteria and leaves the strong and drug-resistant bacteria behind to colonize and exacerbate leaky gut syndrome. The bacterial toxins seep through the permeable gut lining and get into the bloodstream, so what was once a gut infection now becomes a systemic infection, often with deadly consequences. Leaky gut can also create chronic diarrhea,

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which reduces a patient's ability to fight infections and depletes the body of essential nutrients and fluids. Similar to what we observe in HIV/AIDS patients, chronic diarrhea leads to a wasting process because the body's immune system is essentially overrun and unable to do its normal job.

Further complicating the problem is the pervasive use of antibiotics in livestock production, for which there is no justifiable use in healthy animals. The antibiotics enter the food in the animal products that we eat and enter water supply from farm run-off and fertilizers applied to crops.[13] Human consumption becomes unintentional and unavoidable. Additionally, with prescription and OTC analgesics being some of the most frequently used drugs, these along with antibiotics, antidepressants, antihypertensives, and others end up in downstream water feeding our local municipalities.[14] Infectious disease experts from the US and around the world agree, "We've reached the end of antibiotics, period." (Arjun Srinivasan, MD, associate director at CDC).[15]

### The Causes of Leaky Gut Syndrome and the Development of Autoimmune Diseases

Even if everyone was breast-fed as infants, poor lifestyle choices can increase intestinal permeability later in life. Extended use of pain medications and repeated courses of antibiotics are the major self-inflicted insults that cause leaky gut syndrome. Other triggers of leaky gut syndrome include parasites, corticosteroids; birth control pills; GMOs; pesticide-contaminated foods; molds, yeast, and bacteria; an excessive intake of refined sugars, caffeine, alcohol, or food additives; surgery; and a decrease in blood supply to the bowel. Although the damage may not be obvious at first and take many years to develop, the major health consequences outside of GI pathogens are autoimmune diseases. Doctors and patients have been slow to make the connection. As the incidence of leaky gut syndrome increased, the incidence of autoimmune diseases skyrocketed, and patients with leaky gut syndrome frequently have multiple autoimmune diseases. Five to 8% of Americans has 1 of 80 autoimmune diseases recognized by the National Institutes of Health.[16] Yet leaky gut syndrome as a diagnosis remains overlooked. The current standard of care paradigm is to treat the symptoms of disease, not the cause of disease, but reversing this paradigm and healing leaky gut syndrome would prevent, reverse, or delay disease.

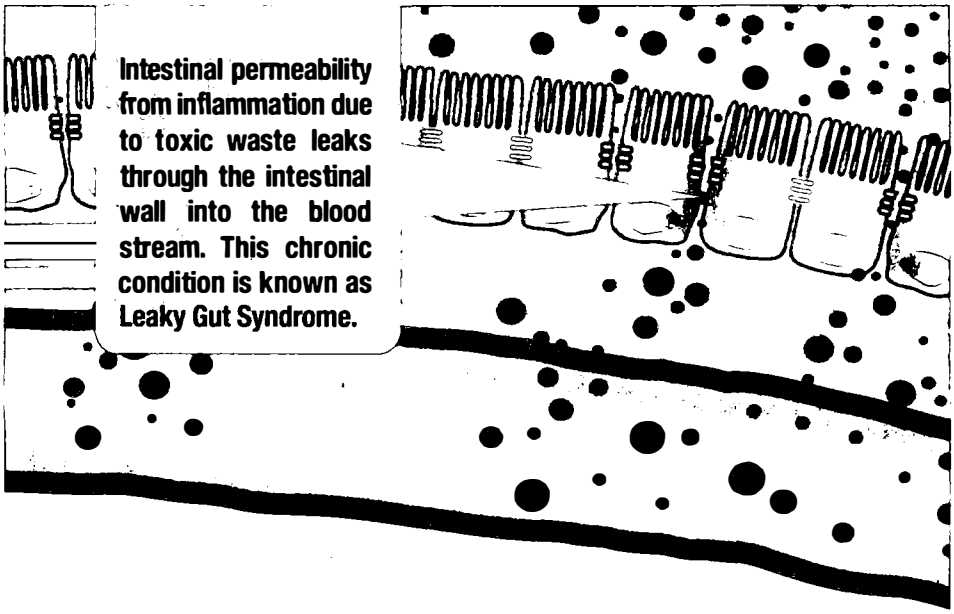
Leaky gut syndrome is directly associated with many autoimmune diseases, including allergies, alopecia areata, Alzheimer's disease, autism, chronic fatigue syndrome, Crohn's disease, depression, diabetes, fibromyalgia, food allergies and sensitivities, heart disease, HIV/AIDS, irritable bowel syndrome, inflammatory bowel disease, multiple sclerosis, polymyalgia rheumatica, Raynaud's disease, rheumatoid arthritis, scleroderma, Sjögren's syndrome, ulcerative colitis, and vasculitis.[17-27] The connection between leaky gut syndrome and these autoimmune conditions is the antibodies created by the body in response to the toxic substances and undigested fats and proteins that leak into the bloodstream and attach themselves to various tissues throughout the body, create an allergic response, trigger the destruction of tissues and organs, and create inflammation. As toxicity increases, autoantibodies are created, and the destruction and inflammation become chronic. There is a tipping point at which the body cannot recover from chronic inflammation, and pathological diagnosis follows. The specific type of autoimmune disease that develops depends on the predominant location of the inflammation. When inflammation occurs in a joint, rheumatoid arthritis can develop; in the brain, chronic fatigue syndrome (myalgic encephalomyelitis) may be the result; in the blood vessels, vasculitis may be the resulting condition; within the gums, periodontal disease can result; or in the lungs, asthma may be triggered. If the antibodies attack the lining of the gut itself, the result may be irritable bowel syndrome, ulcerative colitis, or Crohn's disease. If the bacteria that cause gingivitis enter the bloodstream and attack the arterial walls, causing inflammation and cholesterol deposition, heart disease and stroke may ensue.

As a secondary consequence, inflammation in the gut damages the body's ability to produce IgA, and without IgA, pathogens can escape into the bloodstream and infect any part of the body. This leads to an increase in infections, an overstimulated immune system, and an abundance of pathogens infecting the liver, thereby creating detoxification failure. Eventually, patients suffer from loss of concentration, impaired mental abilities, decreased energy, and skin infections and irritations, such as hives or acne, as the skin organ attempts to detoxify that which the liver is failing to provide.[28]

### Colostrum to the Rescue

The "superbugs" created by decades of antibiotic misuse and our overreliance and addictions to pain medications need not be our undoing.[29,30] Mother Nature's gift of colostrum is just waiting to be rediscovered. Colostrum was designed to prevent infections originating in the bowel, to close the leaky gut, and to prevent opportunistic infections from taking over and causing or exacerbating leaky gut syndrome. For individuals who already have an autoimmune disease, colostrum is absolutely essential to the healing process. Unless a permeable gut is healed, the body cannot begin to repair the damage caused by inflammation. As healing begins, the amount of toxins dumped into the bloodstream will decline, nutritional uptake will improve, the cells will have better access to the fuel that they need to for repair and replication,

*continued on page 72* ➤



**Intestinal permeability from inflammation due to toxic waste leaks through the intestinal wall into the blood stream. This chronic condition is known as Leaky Gut Syndrome.**

# The One-Two Punch for Chronic Disease Conditions

Colostrum is the only substance proven to prevent and repair Leaky Gut Syndrome, and healing a patient's permeable gut halts disease progression. But, that's only half the solution, and there's more work to be done. Existing cellular and tissue damage caused by Leaky Gut Syndrome still remains, and inflammation resulting from a hyped-up immune system must be attenuated if true healing is to occur.

A balanced, optimally functioning immune system is key to health and well-being, and once again, it's colostrum to the rescue. This time, it's the Proline-Rich Polypeptides (PRPs) in colostrum that balance the immune system. This collection of short chain peptides are powerful immune modulators that help regulate the thymus gland and stimulate the production of either helper or suppressor T lymphocytes, depending on the need to either stimulate or suppress immune system activity. PRPs also induce the growth and differentiation of B lymphocytes and stimulate cytokine production, particularly IL-10, an anti-inflammatory cytokine. The most active PRPs in colostrum are the PRP-2s whose mechanism is primarily antimicrobial, and the PRP-3s whose mechanism is primarily anti-inflammatory. PRP is not species specific, which makes bovine colostrum an excellent and abundant source.

## The Total Gut Solution

First, Colostrum-LD® heals gut lining inflammation, decreases permeability, and increases the surface area of the small intestine for improved absorption of beneficial and critical nutrition. Second, IRM (Immune Response Modulator)® with its concentrated PRP2s and PRP3s inhibits the initiation of inappropriate inflammatory cascades associated with allergy and autoimmune responses. IRM® helps stop the destruction of body tissue associated with improper immune response and inhibits viruses known to be associated with autoimmune response.

Sovereign Laboratories is on the forefront of colostrum research and processing to maximize bioavailability of active components. Liposomal Enhanced Delivery system, an applied coating, allows powdered colostrum to readily dissolve in liquids and ensures powdered colostrum and oral colostrum spray will bypass digestion; will be transported through the bowel wall; will circulate throughout the body; will reach the organs and cells; and will remain bioavailable at the cellular level. *"Liposomal Delivery makes colostrum (and other nutrients) up to 1,500% more bioavailable" (Robert R. Milne, MD).* When used in combination, Colostrum-LD® and IRM® are clinically proven to provide the one-two punch for chronic disease conditions.

*For more information, please see the article in this issue and go to our website for professionals at ww.ColostrumTherapy.com*

# Stop LGS with Colostrum-LD®

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# Heal with IRM Immune Response Modulator® by restoring balance to the immune system

- Proline Rich Polypeptides (PRPs) in IRM® are needed to stop over immune response created by LGS leading to asthma, allergies and other auto-immune conditions
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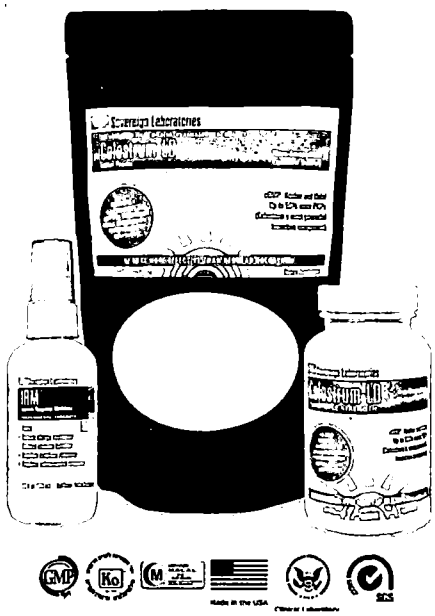

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organ function will improve, and energy levels will rise.

And unlike the so-called wonder drugs of the pharmaceutical industry, absolutely no harm comes from colostrum.[31] It has no known side effects and has no known interactions with drugs. Colostrum has been proved in both animal and human trials to prevent and heal leaky gut syndrome, and it's the only substance conclusively proven to provide this kind of result. Food elimination and herbal products can't do the job because they don't contain the antibodies, immunoglobulins, and growth factors necessary to heal the gut lining and provide the nutrition and hormones for cell repair, growth, and differentiation. According to the book of Sirach, colostrum is ranked alongside wheat, honey, salt, water, fire, and iron as being some of the ancient "necessities of life."[32] In modern society, bovine colostrum is the "necessity of life" for healing every chronic disease.

Bovine colostrum is effective against a wide range of pathogens, including bacteria, viruses, and protozoan parasites, that cause diarrhea and other gastrointestinal illnesses.[33-36] Even in the worst case of AIDS, colostrum could eliminate chronic diarrhea so that nutritional uptake was restored and patients could reverse their wasting disease and regain a significant measure of health. If this is any indicator of how well colostrum could work, from the occasional tummy bug that someone got at the local eatery to the *C. diff* that they picked up in the hospital, then we have cause to celebrate. And with the CDC reporting that 2 million Americans become infected with antibiotic-resistant bacteria annually, practitioners must advocate strongly for colostrum use.[37]

Colostrum's antimicrobial and antiviral activity is due to its antibodies, lactoferrin, lactoperoxidase, lysozyme, and other immune factors which bind to pathogens and destroy their cell membranes or compete for binding sites on the intestinal wall:[38,39] Initially, many researchers believed that in order for colostrum to be effective against specific diarrhea pathogens, the cows needed to be immunized with those specific pathogens a minimum of 24 hours prior to colostrum collection. This was termed *hyperimmune colostrum*. Later, it was discovered that nonhyperimmune colostrum was equally effective in preventing diarrhea.[40] More good news, and the reason is that cows acquire their immunity from pathogens in the grasses that they eat and from the infected people whom they come in contact with, in addition to all the passive immunity that they received from their maternal lineage. This broad-spectrum defense is what makes colostrum so beneficial for human use.

### High-Efficacy Colostrum Supplements Yield Health Benefits

In order for colostrum to be effective, it must contain high levels of the active components, and it must be able to reach the cells with no compromise in bioactivity. A phospholipid coating, such as liposomal delivery, protects the colostrum from digestion and ensures that it can deliver the nutrients, growth factors, and antipathogenic action of colostrum to the cells.[41] Raw fresh colostrum has a liposomal surrounding of the active, sensitive molecules, and so we know that this is critical for processed supplements. Only one processing plant in the world has been designed to process colostrum in a way that maintains integrity of the active components and verifies bioactivity and the presence of antibodies prior to distribution to consumers. If a colostrum supplement can't heal leaky gut syndrome, it's no better than powdered milk.

I've been working with physicians for over two decades in leaky gut and gastrointestinal health with phenomenal results. I've had some very significant reports from patients and physicians testifying to remission and restoration of damaged tissue in multiple sclerosis, fibromyalgia, scleroderma, and Alzheimer's disease. We believe this to be the result of the healing of leaky gut syndrome and the ability of colostrum's growth factors to help repair damaged tissue and organs. I recommend that physicians put their chronically ill patients – anyone with allergies, food sensitivities, autoimmune diseases, immune problems, cancer, heart disease, and so on – on colostrum as a first mode of treatment. I also suggest a gluten-free diet because gluten coats the villi in the small intestine, thereby trapping any pathogens in the infected area of the bowel. Colostrum can't destroy the pathogens if it can't reach them. The bowel needs to be reseeded with probiotics, and again colostrum is needed for the good bacteria to colonize. If leaky gut was the result of parasites, an antiparasitic cleanse is necessary, as colostrum does not destroy parasites.

Physicians with gluten-sensitive patients are particularly interested in colostrum. The Institute for Responsible Technology just came out with a report that confirms what I've believed for a long time. GMO foods are linked to leaky gut syndrome and may also trigger or exacerbate gluten-related disorders, including celiac disease.[42] Of the nine GMO food crops grown for human consumption containing high levels of Bt toxin, corn and corn oil are most widely consumed in the US and Mexico. The Bt toxin was designed to puncture holes in insects' digestive tracts, and studies have demonstrated this in human cells as well.[43] Bt toxin may be related to leaky gut syndrome, and as a whole, GM foods may be contributing to the rise in gluten sensitivity.

"Colostrum is the ideal solution for leaky gut syndrome. Its components prevent and heal GI damage. Unless the gut is healed, the body cannot begin the process of repair" (Donald Henderson, MD, MPH, UCLA professor of medicine).[30] If you heal the gut, stop the crossover of toxins, and detoxify the body, then you're going to see a starting point from which you can begin eliminating

multiple symptoms and narrowing down a process and a pathway to wellness. Recommended dosing is 1 teaspoon colostrum mixed with water on an empty stomach 30 minutes before meals and before bedtime. Results are typically achieved within 30 days, and regular use is required to maintain benefits.

Common practice dictates that practitioners perform allergy/food sensitivity tests and recommend a food elimination program to heal leaky gut. Foods are not the cause of leaky gut. They're the symptom of leaky gut. That is the proof that leaky gut exists, and I believe that every patient who walks through your door with a chronic disease complaint has leaky gut syndrome. If you haven't put colostrum into your practice, or you have put colostrum in your practice before and you didn't get results, you really need to take a look at the fact that not all colostrum on the market is equal. Not all colostrum is processed to ensure the bioactivity of the beneficial components. And if they're not bioactive, they're not going to provide the kind of results that I'm talking about in this article.

## Conclusion

Often misunderstood and nearly always undiagnosed, leaky gut syndrome has become an epidemic in modern times, as evidenced by the epidemic of allergies and chronic diseases. The more public attention given to the overuse and abuse of pain medications and antibiotics is sure to drive home the message that physicians need a paradigm shift in treatment of chronically ill patients. When Hippocrates said that all disease begins in the gut, he was far ahead of his time. After 2000 years, we are just beginning to understand and accept this premise in modern medicine. If we understand and appreciate colostrum for the true gift that it is, we can utilize it for the healing and prevention of gastrointestinal distress and therefore, chronic toxicity; and in doing so, we will dramatically increase quality of life and reduce unnecessary death and disability.

## Notes


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Douglas Wyatt is the founder of Sovereign Laboratories LLC, a Sedona-based company dedicated to developing natural products that provide the public with the best solutions for optimal health. He is honored to be listed as the leading expert in colostrum and is credited with reintroducing bovine colostrum into human use. Additionally, he serves as the research director of the International Center of Nutritional Research, a not-for-profit institute dedicated to nutritional health, and is one of the leading figures in the natural products Industry. Doug is a leader in the research and a proponent of colostrum's unique and powerful healing components that show incredible promise for turning the tide on the prevention and treatment of the world's increasing chronic disease endemic. As a publisher, author, writer, scientist, and public speaker, Doug has appeared nationwide on television and radio shows and at health conventions worldwide. He is dedicated to the prevention of chronic disease through natural nutritional intervention and is working with the WHO (World Health Organization) and other internationally recognized research organizations on clinical trials on HIV/AIDS other infectious disease, autoimmune disease, and bowel health issues.

# Vascular Biology, Endothelial Function, and Natural Rehabilitation
# Part 2: Oxidative and Nitrosative Stress

by Jeremy Mikolai, ND

The function of the vascular endothelium plays a central role in the health and disease of the cardiovascular system. This tissue covers the inner surface of every artery, arteriole, capillary, venule, and vein in the body as well as the inner surfaces of the heart. It is the body's largest paracrine organ; laid out cell to cell, the vascular endothelium of an average-sized human being would cover 700 m2.[1]

In health, the vascular endothelium maintains appropriate vascular wall tension and permeability of the blood vessel; maintains an anticoagulant, antithrombotic, profibrinolytic milieu which also inhibits immune cell adhesion and activation; and maintains and promotes appropriate vascular remodeling.[2] *Endothelial activation* is the term used to denote changes in the homeostasis of the tissue, including gene expression, tissue repair, and inflammatory mechanisms resulting from injury. Activation of the endothelium results in the expression and exposure of myriad procoagulant and platelet aggregating factors, adhesion molecules, selectins, integrins, and therefore promotion and propagation of endothelial dysfunction (VEd).[1,3-4]

Endothelial dysfunction has been succinctly and deftly defined by Corretti, Panjrath, and Jones as "... regulatory changes leading to abnormal vasomotion and the expression of a prothrombotic and pro-inflammatory phenotype of the vascular endothelium."[1] It may include many changes in the gene expression, molecular expression and signaling, phenotypic cellular expressions, immune activation, and mechanical alterations to the tissues of the vascular system.

VEd is central to the pathogenesis of many acute and chronic conditions.[5] Like the endocrine, immune, hematologic, and nervous systems, it is intimately involved, directly or indirectly, in many pathological processes. VEd has diverse pathological manifestations, which may be acute or chronic; they may be insidious, emergent, or both; they may involve the heart and vascular system or any other organ system.

At present, the genetics, molecular biology, and pathophysiology of VEd are complex and incompletely elucidated. Yet, in many ways, VEd represents the "unified field theory" of cardiovascular disease. The overlap between atherosclerosis, oxidative stress, mechanical stress, vascular injury, inflammation, and thrombogenesis occurs at the interface between the blood and the endothelium and through the signaling of VEd. We can broadly group the mechanisms of VEd into categories which involve: (1) the nitric oxide pathway or (2) oxidative and inflammatory stress. In reality, these two are inseparable and occur together along with neurohormonal stressors and other molecular dysfunction. However, they make a straightforward divide in the discussion of VEd. We have previously discussed the nitric oxide pathway and will endeavor herein to discuss the role of oxidative stress, inflammation, and natural rehabilitation of the VEd.

The increased study and understanding of VEd supports the notion that VEd results from production of reactive intermediates in and around the vascular endothelial cells.[6] When we think about oxidative stress in the human body, we often focus our attention on the so-called reactive oxygen species (ROS), including the hydroxyl (OH–), superoxide (O2–), and hydrogen peroxide molecules (H2O2). Several endogenous enzyme systems produce ROS, including nitric oxide synthase (NOS), cyclooxygenases (COX), lipoxygenases, NAD(P)H oxidases, and mitochondrial oxidases. When present in sufficient quantities to overwhelm the body's natural antioxidant mechanisms, such as superoxide dismutase (SOD)

and reduced glutathione (GSH), an abundance of ROS can result in prolonged endothelial activation and VEd and decreased nitric oxide (NO) availability, and can manifest in physiologic dysfunctions in blood flow, vasodilation, inflammation, coagulation, and cell signaling and repair mechanisms, as well as propagate and initiate further reactive species production. Furthermore, diseases associated with VEd or risk for VEd are often accompanied by increased oxidative stress, as in obesity and diabetes mellitus, and increased expression of enzymes that produce ROS, such as NADPH oxidases and xanthine oxidase (XO) in the setting of coronary artery disease.[1,6–9]

The role of ROS in VEd goes beyond their individual capacities to produce oxidative damage. The individual capacity for each ROS to produce oxidative damage is mitigated by several factors, including its rate of production, diffusion capacity, environment, and reactivity. For instance, the OH– radical is a strong reducing agent and will react with virtually any biological molecule within the distance that it can diffuse; however, it is only able to diffuse over a very short distance (a few nanometers) and that fact limits its biological implications.[6] On the other hand, O2– has only mild reducing potential in solution while it becomes a strong oxidant when protein-bound.[6] ROS contribute to VEd through decreasing available NO, signaling the production of inflammatory molecules and cytokines, upregulating inflammatory gene promoters and their activity, and production and promotion of several more damaging reactive species.

The accelerated inactivation of NO by ROS is considered a central component in the pathogenesis and propagation of VEd.[6] Decreased NO availability occurs by several mechanisms resulting from oxidative stress. First, when there are insufficient substrates for NO production, the NOS pathway forms ROS rather than NO; we call this process *uncoupling of NOS*.[7,8] When there is insufficient tetrahydrobiopterin (BH4), the NO pathway predominantly forms the O2– radical; when there is insufficient L-arginine available, H2O2 production is predominant.[9] The O2– radical readily reacts with NO to produce the peroxynitrite anion (ONOO). The implications of ONOO are important and far reaching, and we will address them in detail momentarily. In this setting, the production of ONOO consumes available NO and also decreases BH4, resulting in decreased NO production.[8,10] Furthermore, the presence of ROS promote the activity of the redox-dependent enzyme dimethylarginine dimethylaminohydrolase, which produces the molecule ADMA. Asymmetric dimethyl arginine (ADMA) is an endogenously produced competitive inhibitor of NOS and therefore results in further reduction of NO production.[11,12]

Nuclear factor-kappa B (NF-kB) is a well described gene transcription factor that participates in production of several inflammatory mediators in response to various types of signaling, including many different immunostimulations, NO, and ROS.[6,13,14] While NO typically inhibits the activation of NF-kB, ROS increase the activation of this redox-dependent factor. In turn, NF-kB activation results in the production and expression of chemotactic proteins, adhesion molecules such as selectins, integrins, intercellular adhesion molecule 1 (ICAM-1), vascular cell adhesion molecule 1 (VCAM-1), platelet/endothelial cell adhesion molecule 1 (PECAM-1/CD31), and a host of cytokines and chemokines. The result of this activation is an increase in leukocyte adhesion, activation, and extravasation in the vicinity of the vascular endothelium.[6,15,16]

The myeloperoxidase (MPO) enzyme system is used by immune effector cells, predominantly neutrophils and macrophages, in the "respiratory burst" to produce reactive species for the purpose of host defense against antigenic molecules, especially microorganisms. The MPO system uses H2O2 and a halide molecule (typically chloride) to produce a hypohalide acid as well as producing tyrosyl radicals, both of which are cytotoxic. Recall that immune cells can also use inducible NOS (iNOS) for the production of NO radicals for host defense.

Furthermore, neutrophils also use NADPH-dependent oxidases to produce O2– for host defense, yet this milieu is the perfect environment for the creation of more powerful and further-reaching reactive species when the endogenous antioxidant mechanisms intended to contain them are overwhelmed.[6,17,18]

Reactive nitrogen species (RNS) are potent molecules in the induction and propagation of VEd, tissue damage, and the pathophysiology of many other conditions. Just as we discuss "oxidation" to connote the chemical ability of an oxygen molecule or species to lose an electron to another molecule, thereby oxidizing it and producing "oxidative stress," so too must we discuss the ability of nitrogen or a nitrogen species to lose an electron to another molecule, damaging it in an analogous way and to that which oxygen does. We will refer to this as *nitrosative stress*.[6]

There are several ways in which nitrosative stress may be responsible for a greater number of more important cellular and tissue effects than oxidative stress.[6] The NO molecule itself is a free radical, but on the whole not a tremendously biologically important one. The single unpaired electron on the NO radical is central to its ability to regulate biological activity by binding to guanylate cyclase and cytochrome-c oxidase through its strong affinity for the iron moiety in heme groups, though outside of this it is not highly reactive.[6] Moreover, the actions of NO are limited to the local vicinity where it is produced because it has very limited diffusion capacity. While there are substantial toxic effects that have been attributed to NO, many nitrosative actions of radical damage have been misattributed to the NO molecule over the history of its discovery and elucidation of its biochemistry and physiology. For instance, NO does not directly damage DNA, as was previously believed. It is more likely that much of the responsibility for cytotoxicity in the NO pathway is the result of its metabolites, especially ONOO.[19]

Many disparate local and distant mechanisms of inflammation, oxidative stress, nitrosative stress, and endothelial dysfunction coalesce in the formation of ONOO and the subsequent damage produced by it. The ONOO is one of the primary "bad actors," as reactive oxygen and nitrogen species (RONS) are concerned in their effects on cellular and tissue damage in the human body. The ONOO is implicated in the pathogenesis and propagation of many diverse diseases from cancer to diabetes, from stroke to circulatory shock, from Parkinson's disease to multiple sclerosis, and others, including virtually every type of cardiovascular disease.[6]

Several factors combine to make ONOO a potent and far-reaching factor in endothelial dysfunction, oxidative/nitrosative stress, and pathophysiology. While the reaction between ONOO and most biological molecules is slow, it is a strong oxidant and reacts directly with iron-sulfur, zinc-thiolate, and sulfhydryl groups in tyrosine phosphatases and other molecules. It can diffuse distantly, can cross cell membranes and through anion channels, and is very stable in circulation.[20–26] Moreover, it is an effective producer of OH– radicals, far more effective than the Fenton reaction, and in this way functions almost like an molecular "smart bomb"; it is robust enough to travel to and reach the target area, then delivers its payload once it arrives.[27]

The local delivery of potent radical production by ONOO is not limited to OH– production. The ONOO also reacts with local carbon dioxide (CO2) to produce nitrogen dioxide and the carbonate radical (CO3–). The CO3– radical can produce most of the same types of damage routinely attributed to the OH– radical but is perhaps the more biologically significant of the two species.[6,28] While production of the OH– and CO3– radicals is not unique to NO/ONOO–, the pathway can also produce unique reactive intermediates such as nitrotyrosine, nitrotryptophan, and nitrated lipids. The MPO enzyme rapidly produces nitrogen dioxide when ONOO is available. MPO enzyme activity further catalyzes tyrosine nitration.[6,17,18]

The concomitant activities of other enzyme systems play powerful roles in the potentiation of ONOO activity and production. The increased activity of O2– production in coronary heart disease, for instance, results in increased ONOO production. It has been demonstrated that the simultaneous production of NO and O2– at a 10-fold increase over basal levels will result in ONOO levels 100-fold greater than basal levels.[6] The inflammatory state and natural history of many pathological conditions increase the production of ONOO, contributing to further oxidative/nitrosative stress, VEd, and pathological progression. The ONOO production itself can be etiological to the development of many pathological states.

The deleterious health consequences of the ONOO are not confined to VEd. Like myriad other health conditions, ONOO production can both contribute to and/or result from VEd. An in-depth discussion of the role of ONOO in the human body and in disease goes well beyond the scope of this article; it has been very well handled elsewhere; it remains both exhaustive and incomplete. Yet, some discussion of the pathological consequences is relevant here, both in understanding the scope of the problem and in discussing approaches to rehabilitation of the RONS stress that contributes to and perpetuates VEd.

The ONOO anion can disrupt virtually every function of mitochondria. Mitochondria have their own isozyme of NOS (mtNOS) that is responsible for

regulating oxygen consumption in the electron transport chain (ETC) by reversibly binding to and inhibiting cytochrome-c oxidase (complex IV). It is also capable of significantly inhibiting complexes I, II, III, and V of the ETC as well as nicotinamide nucleotide transhydrogenase, which is responsible for regenerating NADPH and in turn regenerating GSH in the mitochondria.[22,29–32] These consequences effectively halt mitochondrial energy production via ETC and oxidative phosphorylation at the same time as increasing mitochondrial production of O2– and ONOO, decreasing GSH, and increasing RONS stress, eventually signaling apoptotic cell death.

The activity of ONOO has consequences for several other enzyme systems. We have discussed its effects on the NOS system (including iNOS), which it inactivates by oxidative modification of the heme group or those with zinc-sulfur moieties.[33] It directly oxidizes BH4, resulting in decreased NO production.[34] Its actions inactivate mitochondrial aconitase and alcohol dehydrogenase, as well as several other enzymes critical in metabolic function.[35] Due to its predilection for thiol oxidation, it reacts extensively with cysteine groups, resulting in its effects on the ETC, as well as in its direct oxidation of GSH and inactivation of creatine kinase (CK) and others.[36,37] By contrast, ONOO activates matrix metalloproteinases (MMPs), the enzyme systems central to degradation of tissues, especially connective tissue, and play a central role in tissue remodeling, including the pathologic remodeling of the vascular and respiratory systems in disease.[38] MMPs are implicated in myriad cardiovascular diseases including aneurysms, dissections, myocardial infarctions, and stroke.[39]

Lipids species are tremendously susceptible to attack and oxidation by ONOO. In particular, polyunsaturated fatty acids (PUFAs), lipid membranes, and lipoproteins are vulnerable to hydrogen atom extraction by ONOO, which sets up a chain reaction of oxidation of the neighboring lipids, propagating and producing increased damage and degeneration of lipid membranes.[40,41] The low-density lipoprotein (LDL) also undergoes potent oxidation from ONOO. As a result, it binds with high affinity to scavenger receptors, leading to accumulations of oxidized cholesteryl esters, resulting in atherosclerosis; this promotes a vicious cycle of further endothelial dysfunction and atherosclerotic progression.[42–44] These ONOO attacks on lipids can include oxidation of myelin lipids, resulting in the initiation or propagation of demyelinating diseases.[45,46]

Tyrosine nitration is also an important pathologic consequence of ONOO. Prostacyclin synthase is the enzyme responsible for the production of the eicosanoid vasodilator prostacyclin (PGI2). PGI2 is synthesized from arachidonic acid released from membrane phospholipids in response to shear stress. Its effects depend on the expression of receptors in the vascular smooth muscle that respond to PGI2 by increasing the production of the second messenger system cAMP, which inhibits smooth muscle contraction by removing calcium from the cytosol. PGI2 does not contribute to basal vascular tone but works with NO in producing dynamic vascular responses to stress and on antiplatelet activity. The enzyme prostacyclin synthase produces PGI2 and is inactivated by the ONOO specific nitration of a tyrosine residue.[1,47]

Nitration of the aromatic ring of the tyrosine residue on proteins has been identified in more than 50 human diseases, and that number is continually increasing.[48] It has been identified in the formation of Lewy bodies in Parkinson's disease and in the inactivation of tyrosine-hydroxylase enzyme activity, inhibiting the synthesis of dopamine, and it has been associated with tau protein aggregation in Alzheimer's disease as well as in neurofilament L alterations in amyotrophic lateral sclerosis (ALS).[49–54]

Damage to DNA can occur as a result of ONOO oxidation of either the nucleic acids or the sugar-phosphate backbone.[55,56] This damage and the molecular signaling that stems from it result in apoptosis and necrosis of numerous cell lines, including primary neurons, dopaminergic neurons, astrocytes, oligodendrocytes, endothelial cells, beta islet cells, cardiomyoctes, chondrocytes, renal tubular cells, and others.[57–65] Phosphotyrosine and other molecular mechanisms of cell signaling are modified by the actions of ONOO and affect molecular mechanisms relating to immune response, tissue repair, and apoptotic cell death.

Cardiovascular conditions are not the exclusive pathological sphere ➤

of influence for ONOO, as we have seen, but it is a predominant system of manifest dysfunction. Nitration of cardiac proteins, including CK, sarcoplasmic reticulum Ca2+-ATPase (SERCA2A), desmin, myosin heavy chain, and alpha-actinin, results in inactivation which impairs cardiac contractility.[66–70] It also inactivates voltage-gated potassium and calcium channels.[71,72] There is substantial evidence for the role of ONOO as a pathological contributor to myocardial reperfusion injury, nitrate tolerance, myocarditis, CHD, allograft rejection, and chronic heart failure outside of its contributions to VEd in these and other cardiac conditions.[73–77]

The molecular nuances of VEd are vast, yet our discussion would not be complete without at least brief mention of several molecular vasoconstrictors and neurohormonal factors prior to any discussion of treatment or rehabilitation of VEd by natural medicine or any other means. Endothelin 1 (ET-1) is a potent vascular molecule with variable effects. We think of ET-1 predominantly as a potent vasoconstrictor, and it affects this action on vascular smooth muscle cell ETA receptors. This effect is most potent in the coronary and renal endothelium. By contrast, the effects of ET-1 on the ETB receptor result in the release of NO and PGI2 from the endothelium.[1] ET-1 has a positive inotropic effect on heart contractility, it modulates vascular remodeling, it inhibits the release of renin from the juxtaglomerular apparatus of the kidneys, and it increases the release of atrial natriuretic peptide (ANP).[9,78] While these actions may seem to improve neurohormonal stress in the vascular system, ET-1 also increases the release of aldosterone and catecholamines from adrenal glands, potentiates the action neurohormonal vasoconstrictors, and activates leukocytes and platelets, leading to a prothrombotic state and an overall net increase in VEd.[79]

Angiotensin II (AngII) is one of the body's most potent vasoconstrictors. It is a well-known pathogenic factor in most cardiovascular diseases. The angiotensin converting enzyme (ACE) is responsible for production of AngII. Local production of ACE is increased at sites of VEd leading to local vasoconstriction in areas that are most vulnerable to endothelial injury, VEd, and thrombosis. AngII can also induce local production of $O_2^-$, through vascular NAD(P)H oxidases, further increasing local RONS, VEd, and ONOO damage.[80–83]

The dysfunction of the vascular endothelium, the contributions made to it by oxidative/nitrosative stress and inflammation, and the pathological interplay of ONOO are all amenable to natural rehabilitation. As it often seems to be in the world of natural medicine, the real trick to treating dysfunctional physiology is not finding an agent to do the work; rather, it is selecting the agents that will address many issues simultaneously. This is especially the case in the redress of VEd. As of now, despite our understanding of its importance in disease, VEd is not considered a target of treatment by the conventional medical community. Thus, we are best off selecting treatments that improve VEd in our patients and treat that underlying cause while simultaneously addressing their concomitant complaints.

A diet high in polyphenols from fruits and vegetables promotes healthy endothelial function. There is a solid foundation of evidence for the role of dietary polyphenols in endothelial function. Consumption of red wine, grapes, berries, cocoa, pomegranate, black and green tea, coffee, olive oil, and soy all have degrees of evidence and literature support for their use to improve endothelial function.[84] Two double-blind, crossover trials of 21 healthy men investigated the effects of blueberry flavonoid intake on flow-mediated dilation (FMD – a measure of endothelial function). At any dose greater than 766 mg blueberry polyphenols, significant increases in FMD were observed at 1, 2 and 6 hours after consumption and were correlated to circulating metabolites and decreases in neutrophil NADPH oxidase activity.[85] Short- and long-term studies of an anthocyanin isolate from berries (320 mg) in hypercholesterolemic patients demonstrated significant short- and long-term improvements in FMD and long-term increases in cGMP.[86] A 30-day double-blind, crossover study of 24 men with metabolic syndrome examined the effects of freeze-dried grape polyphenol powder versus placebo on measures of endothelial function. On-treatment effects demonstrated significant decreases in systolic blood pressure (SBP) and adhesion molecules sICAM-1 and sVCAM-1, and a highly significant increase in FMD ($p<0.0001$).[87] A small study of 34 adults investigated the effects of 1 cup/day of raisin consumption versus increased daily walking distance versus the two interventions combined. All three groups in the study demonstrated significant decreases in blood pressure, LDL cholesterol, triglycerides, and sICAM-1, with the raisin group demonstrating an additional significant reduction in circulating levels of the inflammatory cytokine TNF-alpha.[88] Studies of cocoa, flavanol-rich chocolate, and dark chocolate have demonstrated positive effects on endothelial function, blood pressure, and platelet function.[89] A small RCT of 40 g/day of cocoa in healthy men also demonstrated decreases in NF-kB activity and expression of E-selectin and sICAM-1.[90] A small crossover study of 19 volunteers eating 70 g/day of tomato paste (33.3 mg lycopene) for 15 days demonstrated significant increases in FMD of 3.3%.[91]

Consumption of olive oil (OO) has developed into a nearly stand-alone treatment for endothelial function, with some conventional sources now considering it a phenol supplement of hydroxytyrosol. The literature

Olive oil ⇒ hydroxytyrosol

supporting OO for improvement of VEd, especially for protection against oxidized LDL, is now so robust that we may see health claims on OO labels supported by the US Food and Drug Administration (FDA). In particular, that OO containing "5 mg or more of hydroxytyrosol and its derivatives per 20 mg of OO contributes to the protection of blood lipids from oxidative stress."[92]

The role of PUFAs and EFAs in the redress of VEd has been well demonstrated. A 2012 meta-analysis of 16 studies including 901 patients and investigating omega-3 (n-3) fatty acid consumption effect on FMD demonstrated a significant and robust protective effect of n-3 on endothelial function and increases in FMD of 2.3%.[93]

Coenzyme Q10 (CoQ10) has been repeatedly demonstrated to increase FMD in patients with CVD and endothelial dysfunction. Doses of 200 to 300 mg/d used over 8 to 12 weeks in DM2 patients on statin drugs and in patients with ischemic left ventricular systolic dysfunction (LVSD) have shown significant improvements in FMD. In LVSD, it also significantly decreases lactate/pyruvate ratio. CoQ10 also reduces the impact of oxidative stress on NO production. CoQ10 may reduce O2 – and ONOO inactivation of NO and protect against nitrosative damage and oxidation of LDL. Investigations demonstrate that treatment effects are greater in patients with the lowest levels of extracellular superoxide dismutase (ecSOD), which implies that greater improvement is seen in settings with the highest oxidative stress.[94-96]

Reduced folate and uric acid can scavenge the ONOO. Folate has been shown to reconstitute the appropriate activity of uncoupled eNOS and to scavenge the nitrogen dioxide and carbonate radicals derived from ONOO.[97] A study of the effects of 5-methyltetrahydrofolate (5-MTHF) on the rehabilitation of endothelial dysfunction was done with 56 patients undergoing coronary bypass graft (CABG). An IV infusion of 5-MTHF resulted in improved NO-mediated vasomotor response, reduced O2 – levels, strong ONOO – scavenging, reversal of eNOS uncoupling by several measures, enhanced eNOS activity, and increased vascular BH4 levels.[98] In turn, BH4 helps to improve the FMD response to the hyperglycemic state. In a small crossover study, patients were given either active BH4 or its inactive isomer during a 2-hour 75 g oral glucose challenge. Glucose loading impaired FMD, but that impairment was reversed by BH4 supplementation and not by supplementation of its isomer.[99]

Melatonin has important effects in the NO pathway. Melatonin is a scavenger of the NO radical and contributes to antioxidant activity in both aqueous and lipid biological compartments. Melatonin scavenges several other radicals, including hydroxyls, H2O2, peroxyls, singlet oxygen, and ONOO –. Melatonin also inhibits the activity of NOS, which may increase its indications in acute oxidative injury.[100]

Resveratrol and Pycnogenol as oral polyphenol supplements have both demonstrated effects in the rehabilitation of endothelial dysfunction. A small yet compelling randomized, controlled, crossover study of 19 adults examined the use of three different oral doses of resveratrol on overweight, untreated hypertensives, and demonstrated significant increases in FMD and decreases in blood pressure over 6 weeks.[101] The results of in vitro studies have demonstrated that resveratrol protected lipids from peroxidation as well as causing increased cholesterol efflux, resulting in lower cholesterol levels in human macropahges.[102] Resveratrol has also been shown to protect VEd from H2O2 oxidative stress in an ex vivo study of coronary vessels harvested from patients with CHD at the time of bypass surgery.[103]

Pycnogenol is the trade name for the pine bark extract of the French maritime pine, *Pinus pinaster*. A small (n = 23), well-designed (double-blind, randomized, controlled, crossover) trial investigated the use of 200 mg/d of Pycnogenol for 8 weeks in patients with established coronary artery disease (CAD). While no significant differences were observed in blood pressure, platelet adhesion, or inflammation markers, there were very significant differences in FMD ($p < 0.0001$) and in the measured index of oxidative stress ($p < 0.01$) in the Pycnogenol group.[104] A slightly larger (n = 58), placebo-controlled, double-blind study of Pycnogenol in patients with hypertension investigated the effects of use of 100 mg/d over 12 weeks. Patients taking Pycnogenol were able to reduce their use of the calcium channel blocker nifedipine in a statistically significant manner. Moreover, the Pycnogenol group demonstrated significantly decreased endothelin-1 concentrations compared with placebo.[105]

The dysfunction of the vascular endothelium is gaining increasing recognition for its role in the underlying causes of cardiovascular diseases, as well as chronic diseases across diverse organ systems. The specific details of the vascular biology in VEd are voluminous and have far-reaching systemic consequences, yet the primary mechanisms involve decreased NO availability, RONS production in the vicinity of the vascular endothelium, and the pathologic role of the ONOO anion. While not yet considered a target of treatment by conventional medicine, there are several natural approaches available to address the rehabilitation of VEd. Many of these treatments involve basic dietary and lifestyle interventions that have demonstrable health effects in several other conditions and in the primary prevention of disease. In this instance, as always, the true beauty and elegance of natural medicine is demonstrated in its ability to address several fundamental causes of disease

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Resveratrol test (cashed ones?

simultaneously, to feed several birds with a single seed.[106]

To contact the author or for further information:
Jeremy Mikolai, ND
Heart & Lung Wellness Center of Excellence in Naturopathic Cardiovascular Medicine
Center for Natural Medicine Inc. (CNM)
1330 SE Cesar E. Chavez Blvd.
Portland, Oregon 97214
503-232-1100
CNMWellness.com
drmikolai@cnmwellness.com

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## Notes

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Jeremy Mikolai, ND, is the NERC Integrative Cardiovascular Medicine Fellow for 2013-15. Along with Drs. Tori Hudson, Sheryl Estlund, and Martin Milner and the Naturopathic Education and Research Consortium (NERC) he has designed the first-ever clinical fellowship program for naturopathic physicians to develop special expertise in areas of medical emphasis. Dr. Mikolai is an assistant professor of naturopathic medicine, clinical medicine, and research at the National College of Natural Medicine (NCNM) and adjunct faculty/professor of cardiology in the naturopathic medicine department at Universidad del Turabo in Gurabo, Puerto Rico. He is also a lead faculty member at the Heart and Lung Wellness Center of Excellence in Naturopathic Cardiovascular Medicine at NCNM and at the Naturopathic Institute of Cardiovascular and Pulmonary Medicine (NICVM).

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# Stem Cell Niche Nourishment


## by Dr. Paul Yanick

### President of the American Academy of Quantum Medicine
### www.aaqm.org


The normal functioning of stem cells requires a nourished environment within the tissue – the stem cell niche – as an indispensable element. The extracellular matrix (ECM) and the growth-regulating proteins within the ECM as well as microbiome-made synbiotic proteins contribute to this niche. Restoring inner ecosystem biodiversity and sustainability allows the rich genetic diversity of the microbiome to make a goldmine of synbiotic nutrients that empower cellular reprogramming. Stimulus-triggered acquisition of pluripotency (STAP) without the need for nuclear transfer or the introduction of transcription factors has recently been demonstrated by scientists.[1]

Observing the infallible wisdom in nature, scientists observed how plant cells can become pluripotent stem cells when nutrient levels or other environmental factors are altered.[2] And Shinya Yamanaka of Kyoto University, who won the Nobel prize in Physiology or Medicine in 2012, demonstrated that it is possible to force the overexpression of proteins called transcription factors in differentiated cells to turn back the clock and make cells behave like embryonic stem cells.[3]

These findings have the potential to sidestep the ethical objections to the use of embryos and the limitations of other methodologies. Nourishment offers cheaper, quicker, and potentially better ways to augment stem cell regeneration.

In nature, somatic cells latently possess a dynamic plasticity – the ability to become pluripotent cells – when they are exposed to stimuli or polarized nutrient formats not normally in their environment. In other words, these findings raise the possibility that proteins in quantum formats act as regulatory modules and may be the key that unlocks static or toxic epigenetic states, leading to a global change in epigenetic regulation toward stem cell regeneration.

As I have explained in my earlier publications, the bioclock activity of genes are "switched on and off by proteins that are assembled in molecular sequences via quantic events."[4] In the past, I have provided a model for nourishing the niches of stem cells via efferent-afferent and microbiome modification.[6-8] It is well known that ECM nourishment can sequester and modulate stem cell niches along with synbiotic protein peptide formats to modulate stem cell niches and that afferent neurons can accomplish some astounding feats of regeneration and neurogenesis.[5,9-12] A default in ECM modulation occurs when microbial cells functioning as nutrient factories are depleted or when afferents neurons are desensitized by nonpolar lipids, denatured proteins, and the ionic stressors that are common in most water purification methods.[6,13,14] In order to activate deeper capacities for healing via the stem cell niche, we have to focus on cell polarity and its effect on microflora composition, loops, and processes such as intestinal adherence and translocation.

Synbiotic nourishment research by Bengmark supports my earlier synbiotic nutrient research on the importance of biomolecular nutrient and cell polarity formats that are critical to adequately nourish stem cell niches, the gut habitat, and afferent regenerative functions.[8,18-20] A huge part of restoring the stem cell niche has to do with restoring the active phase of motility or oscillatory motion in the direction of the original embryonic migration. In this regard, polarized sulfolipids are indispensable, as they calibrate microflora, empower the liver's sulfation pathway to erase gut inflammation, and transform the gut lumen into a habitat that favors persistent commensalism and symbiosis.[21-27] It took me over four decades of empirical research to understand how to recolonize the gut and restore the gut habitat in patients with a past history of taking antibiotics or natural anti-infective remedies. Ideally, clinicians need to stop obsessing on killing microbes and start restoring the gut ecosystem status that nourishes the stem cell niche.[6,8,15,18]

Nature integrates all ecosystem cycles and is the final arbiter of truth and unquestionable authority on cell polarity, stem cell niches, and the gut ecosystem cycle determinants that can help us reach a superorganism potential. When in doubt about a medical practice or dietary supplement, do we constantly cross-check what we know against the way things are found in nature so that we may gain the kind of empirical wisdom that truly benefits our sick patients?

In summary, stem cells can turn into many different types of cells, and research demonstrates that they have a niche.[11,12,28] The ultimate way to control their differentiation is to control and nourish their niche.[28] In turn, these niches keep the stem cells fed and nourished similar to the way that queen bees make drones.

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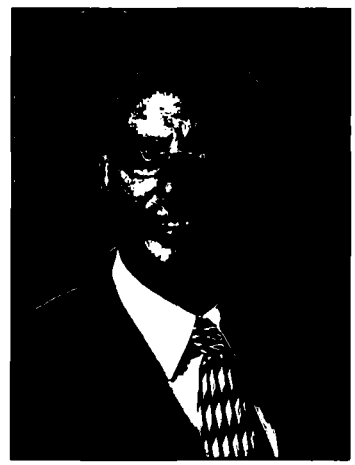
Dr. Paul Yanick is board-certified diplomat in integrative medicine, anti-aging medicine, and quantum medicine. He is the founder and president of the nonprofit American Academy of Quantum Medicine in charge of national board certification in quantum medicine. Earlier in his career, his hospital and university research was the first to link neurological and ear disorders to cell polarity and nutritional deficits (*Journal of the American Audiology Society*, 1975:2; *Journal of Applied Nutrition*, 1988:40; *Journal of Medical Audiology* 1983:5; *International Journal of Holistic Health and Medicine* 1893:1). These breakthrough discoveries saved his life from two incurable and terminal illnesses.



# Do We All Suffer from Omega-6 Fatty Acid Deficiency?

review by Jonathan Collin, MD

***PEO Solution***, by Brian S. Peskin, BSEE, and Robert J. Rowen, MD
Pinnacle Press
© 2015 (now in print); softback; $27.50; 532 pp.

Brian Peskin is the author of a number of books, all published by Pinnacle Press, based on the idea that health and disease are predicated on having sufficient omega-6 fatty acids. Peskin, who graduated in electrical engineering from MIT and taught briefly at Texas Southern University, has devoted the past decade to teaching and promoting his theory about "PEOs" – parent essential oils. By "essential oil," he is referring to the omega-6 linoleic acid and the omega-3 alpha-linolenic acid. Peskin considers omega-3 supplements containing DHA and EPA "derivatives" of the "parent" omega-3 alpha-linolenic acid (ALA). From Peskin's perspective, derivative fats, unlike unadulterated PEOs, interfere with normal body biochemistry and physiology. In his previous book, *The Hidden Story of Cancer*, Peskin made his case for using PEOs in preventing and treating cancer. In *PEO Solution*, Peskin reiterates this same theory that the population at large is eating a diet replete with adulterated oils, particularly adulterated omega-6 fats. These fats oxidize cholesterol, deform cellular and mitochondrial membranes, and directly contribute to the process of inflammation and, thereby, atherosclerosis, cancer, and neurodegenerative disease. Further, Peskin makes the case that omega-3 supplementation in the form of fish and marine oil worsens that pathology – and he proceeds to cite about 100 medical studies that he asserts support his position. In *PEO Solution*, Peskin brings on board Robert Rowen, MD, who is a practicing oxidative-therapy physician and author of the newsletter "Second Opinion," to bring a vegetarian's perspective about how adulterated omega-6 fats and excess omega-3 fish oil are endangering our health.

Peskin examines the body tissue composition of omega-6 to omega-3 PEOs. The ratio in muscle is 6:1, adipose tissue is 22:1, brain is 100:1 and skin is 1000:1. The composition of omega-6 to omega-3 PEOs in plasma is 9:1 and in cholesterol esters 100:1. Peskin states that our diet composition should therefore favor omega-6 to omega-3 PEOs by 11:1. While the standard American diet provides adequate levels of omega-6 fats, the majority of these oils are adulterated during the manufacturing process and later in cooking. Peskin discusses a recent review by S. D. Anton, who examines the effects of adulterated versus unadulterated linoleic acid on cardiovascular health (*J Integrat Med*. 2013;11[1]:2–10). Peskin disavows the general consensus that arachidonic acid formed from omega-6 fats is inflammatory; instead he asserts that it is critical for forming the prostaglandin PGI2, "the body's most powerful natural 'blood thinner', platelet anti-aggregator and anti-adhesive vasodilator." Peskin and Rowen advise the consumption of nuts that contain high ratios of omega-6 to omega-3 PEOs. Many other foods also contain high ratios of omega-6 to omega-3 fats, including avocado, coconut, olive, parsley, beet, carrot, and tomato. Peskin and Rowen prefer that vegetables be eaten either raw or only lightly cooked (using butter rather than olive oil or vegetable oils). Peskin argues that daily supplementation with an unadulterated oil having a high omega-6 to omega-3 ratio is necessary; Rowen advocates a diet of raw "living foods" providing naturally the ideal omega-6 to omega-3 balance. Both Peskin and Rowen argue that there is no need for fish oil supplementation – in fact, avoidance of high-dose omega-3 supplementation may be clinically helpful in reversing symptomatology. Peskin concedes that if one is looking for a "steroidlike" effect, fish oil offers support for managing autoimmune disease. However, he states that supplementation of unadulterated omega-6 PEOs offers the best possibility of reversing cardiovascular disease and diabetes as well as cancer.

*PEO Solution* is an opinionated read – Peskin does not think that his theory is wrong and he challenges the reader to substantiate why omega-3 supplementation is preferred to omega-6 supplementation. He admits that he dismisses the "weak evidence" offered in more than 1500 studies of omega-3s; he considers many of them to have faulty scientific conclusions. Unfortunately, he is unable to review the results of any published studies testing PEO supplementation versus placebo – because there are none to date. Instead Peskin reports the comments of satisfied individuals who have followed a low-carbohydrate diet using PEO supplements. Both Peskin and Rowen use their own personal medical histories to justify the PEO theory. Unhappily for the more conservative reader, Peskin writes with great hubris – his frequent philosophical asides do not necessarily make his arguments more persuasive. Still Peskin's theory deserves to be read and considered. For those patients who have been taking omega-3 supplements for a long time, there might be a need to hold them and see what happens.

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# **PEO Solution:** The New Clinical Tool for Physicians

**Prof. Brian S. Peskin, BSEE-MIT, Founder of** Life-Systems **Engineering Science,** is the world's foremost **authority and international lecturer on physiologic plant-based oils** and the highly acclaimed author of the landmark book, The Hidden Story of Cancer. **Prof. Peskin is the "Physician's Resource for PEO-based Solutions."**

**Robert Jay Rowen, M.D.** is internationally respected as the "**Father of Medical Freedom.**" He is a **renowned international authority in oxidative medicine,** and **considered today's foremost pioneer of bold, innovative healing** methods. Having trained over 700 doctors and instrumental in helping thousands of patients recover their health, **Dr. Rowen is the "Doctor's Doctor."**

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Medicine/Chairman of the Brazil American
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Medicine—BARM (Brazil/USA)

"***...I have never seen such a remarkable result. When he [the patient] stopped the PEOs the plaque came back!***"
—Robert Kagan, M.D., Radiologist (USA)

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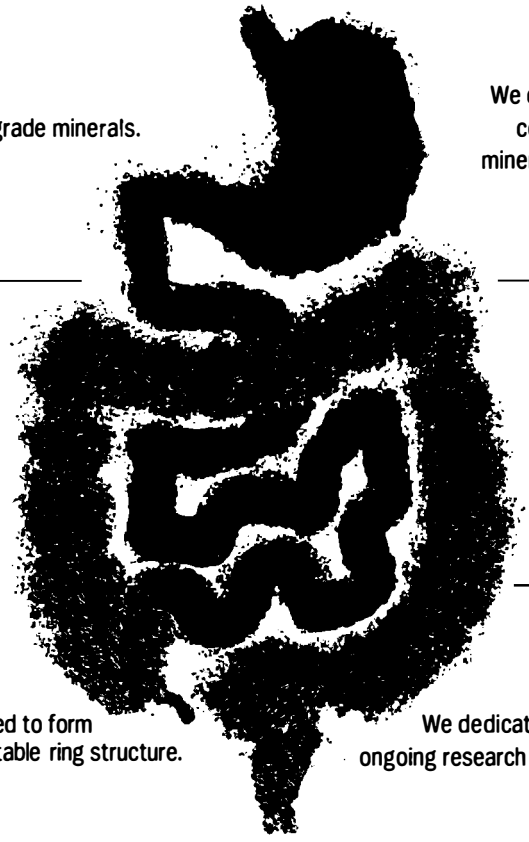

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# Osteopathic Medicine

review by Katherine Duff

***Healing Pain and Injury,*** by Maud Nerman, DO, CSPOMM, CA
Bay Tree Publishing; 1400 Pinnacle Court #406, Pt. Richmond, California 94801
© 2013; $24.95; softcover; 346 pp.

Maud Nerman, DO, has been practicing osteopathic medicine for over 30 years. Her book, *Healing Pain and Injury,* details her practice of manual medicine as well as her interest in homeopathy and Chinese medicine. The emphasis of this book is on the role of trauma in causing long-term pain and neurological dysfunction.

First of all, the philosophy of osteopathic physicians is to see the patient as a whole organism that is always working to restore health. They see that the body's structure and function are connected, and that to heal, the structure must be unrestricted. The author reminds us that while many consider the role of the osteopath to be limited to resolving structural pain such as backaches, there is much more to it. The dysfunctional structures can induce a myriad of symptoms that affect parts of the body far away from the source, such as high blood pressure, heart arrhythmias, bronchitis, and more. Discovering the hidden source of the symptoms involves questioning the patient about past physical traumas, including disease and surgeries, that could have led to the ongoing pain and malfunctioning structures.

Nerman describes the body's response to trauma. First of all, trauma shocks the nervous system and our autonomic nervous system turns on the "flight or fight" response. The musculoskeletal system absorbs and redistributes the force. Our immune system seals off the injury and sets in motion the process of healing. The problems arise when these processes are overwhelmed and fail to turn off as they should. This could continue for years, resulting in pain and dysfunction in various parts of the body. People who suffer these effects may go years searching for answers to their ill health only to be told their problems are psychologically caused.

For treatment, the author offers her "Three Principles of Healing Trauma." The first principle is called "Trauma Shocks the Nervous System." If long after the trauma, the stress chemicals have not turned off and are still being released, the body is actually wearing itself out. Symptoms of fatigue, poor sleep, indigestion, autoimmune disease, and depression constitute what the author calls "injury shock." The nervous system must be returned to normal for healing to occur.

The second principle is "Trauma Provokes a Firestorm of Inflammation." The natural response of inflammation and swelling should subside, but when it does not, it will contribute to diseases such as diabetes and heart disease. Healing can occur when runaway inflammation is turned off.

The third principle is called "Trauma Jams up the Body's System of Motion." In this principle, we begin to see the unique role of osteopathic medicine in treating injury shock. The healthy body needs to move freely and this includes the bones, organs, muscles, and connective tissues. Nerman notes that the gut must pulsate appropriately, the brain must expand and contract, and the liver must rock as it processes toxins. Resolving the restrictions to these movements is necessary to regain health.

The first step in healing involves breathing exercises and poses to assist the diaphragm and calm the nervous system. In this chapter, the author has called upon her own teacher of movement modalities, Patricia Sullivan, to teach the breathing practices and poses.

> "Osteopathic medicine understands that the body's structure and function are intimately related and that to heal, a person must heal structure in order for function to improve."

Taming inflammation is the next crucial step in healing. The author describes the important role of the lymphatic system in removing the debris from inflammation, and transporting oxygen and nutrients to the cells. Without this properly functioning system, the waste cells contribute to even more inflammation and the healing is slowed due to lack of oxygen. Lymph does not have an organ to pump the fluid but rather depends upon the movement of the diaphragm to do that work.

Throughout this book, Nerman stresses the importance of the diaphragm and refers to it as the first of her five heroes. Since it is connected to so many organs, it can adversely affect the heart, liver, adrenal glands, stomach acid, and blood and lymph circulation. Her four other heroes are the lymphatic system, sacrum, fascia, and skull. Where any one of these elements is restricted, ill health can result.

The author uses case examples to describe the sources of trauma and the resulting treatment for a variety of conditions. She examines neck injury, the pelvis and sacrum, back pain, and the chest, beginning with a discussion of their anatomy and what could be functioning improperly.

In the chapter about back pain, we learn that the sacrum can often be the cause. Trauma can rotate the sacrum, or push one corner up, or sometimes it can become jammed between the hip bones and lose motion, something that can cause further damage to the facets and discs of the spine.

Another cause of back problems could be a poorly moving diaphragm. Among other tasks, the diaphragm pumps fluid into the spinal discs and the fibers of the diaphragm interweave with the muscles that stabilize the body's entire central structure. To address these problems, patients are sent to one of several different movement therapists for strengthening. Nerman will then treat the dysfunctional sacrum with manual medicine to reset the hip bones and sacrum, with the goal of all treatments to free up motion.

In addition to being a committed healer, Maud Nerman has shown herself to be a very good writer in this book. Besides reminding us about the principles of osteopathy, she describes how homeopathy, Chinese medicine, and diet and exercise can be integrated into her treatments. All of these facets of her treatments are presented in a way that further demonstrates just how the body is interconnected. This superbly written book should give valuable insights for patients and clinicians alike.

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# AHP Releases *Cannabis In the Management and Treatment of Seizures and Epilepsy: A Scientific Review*

The American Herbal Pharmacopoeia (AHP) today announced the release of a section of the soon-to-be-completed *Therapeutic Compendium: Cannabis in the Management and Treatment of Seizures and Epilepsy*. This scientific review is one of numerous reviews that will encompass the broad range of science regarding the therapeutic effects and safety of cannabis. In recent months, considerable attention has been given to the potential benefit of cannabis for treating intractable seizure disorders, including rare forms of epilepsy. For this reason, the author of the section, Dr. Ben Whalley, and the AHP thought it important to release this section in its near-finalized form into the public domain for free dissemination. The full release of AHP's *Therapeutic Compendium* was scheduled for early 2014.

Whalley is a senior lecturer in pharmacology and pharmacy director of research at the School of Pharmacy of the University of Reading in the UK. He is also a member of the UK Epilepsy Research Network. Whalley's research interests lie in investigating neuronal processes that underlie complex physiological functions such as neuronal hyperexcitability states and their consequential disorders such as epilepsy, ataxia, and dystonias, as well as learning and memory. Since 2003, Whalley has authored and co-authored numerous scientific peer-reviewed papers on the potential effects of cannabis in relieving seizure disorders and investigating the underlying pathophysiological mechanisms of these disorders.

The release of this comprehensive review is timely, given the growing claims being made for cannabis to relieve even the most severe forms of seizures. According to Whalley: "Recent announcements of regulated human clinical trials of pure components of cannabis for the treatment of epilepsy have raised hopes among patients with drug-resistant epilepsy, their caregivers, and clinicians. Also, claims in the media of the successful use of cannabis extracts for the treatment of epilepsies, particularly in children, have further highlighted the urgent need for new and effective treatments." However, Whalley added, "We must bear in mind that the use of any new treatment, particularly in the critically ill, carries inherent risks. Releasing this section of the monograph into the public domain at this time provides clinicians, patients, and their caregivers with a single document that comprehensively summarizes the scientific knowledge to date regarding cannabis and epilepsy and so fully support informed, evidence-based decision making." This release also follows recommendations of the Epilepsy Foundation, which has called for increasing medical research of cannabis and epilepsy and made the following statement: "The Epilepsy Foundation supports the rights of patients and families living with seizures and epilepsy to access physician-directed care, including medical marijuana." AHP's *Cannabis In the Management and Treatment of Seizures and Epilepsy* represents the first step in increasing awareness of the currently existing research.

AHP's *Cannabis Therapeutic Compendium* is a companion to AHP's *Cannabis Quality Control Monograph*, released in December 2013. The *Quality Control Monograph* and *Therapeutic Compendium* were developed in collaboration with Americans for Safe Access (ASA), a medical marijuana advocacy group in Washington, DC.

To download *AHP Therapeutic Compendium: Cannabis in the Management and Treatment of Seizures and Epilepsy: A Scientific Review*, please visit www.herbal-ahp.org.

AHP is a nonprofit research organization of herbal medicine in Scotts Valley, California. AHP and the author encourage the free distribution of this section on epilepsy to help increase awareness of the evidence base regarding the use of cannabis for this indication and to encourage further research in this area. Questions regarding the monograph should be directed to: Roy Upton (ahp@herbal-ahp.org); questions pertaining to research regarding cannabis and seizure disorders should be directed to: Benjamin Whalley: b.j.whalley@reading.ac.uk.

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# Healing with Homeopathy

by Judyth Reichenberg-Ullman, ND, DHANP, LCSW, and Robert Ullman, ND

www.healthyhomeopathy.com

## The Traveler's Dozen: Your 12 Essential Homeopathic Travel Companions – Don't Leave Home Without Them!

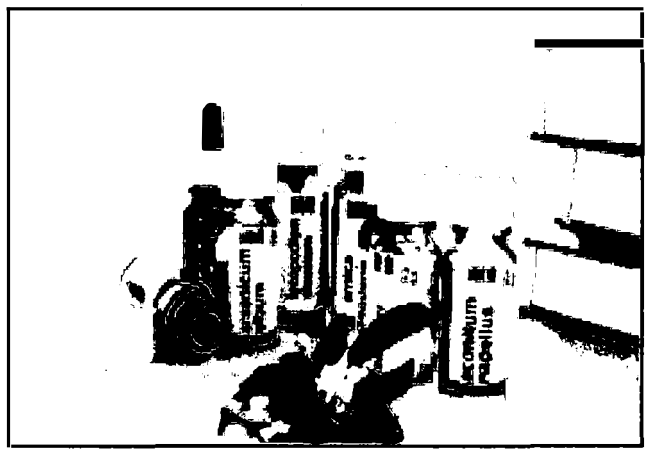
Some material excerpted from our upcoming book *The Savvy Traveler's Guide to Homeopathy and Natural Medicine* and the revised edition of *Homeopathic Self-Care*. (Picnic Point Press; 2014.)

### Homeopathy Can Save Your Trip and Your Health

When you travel for pleasure, you surely want to see beautiful new scenery and interesting locales, meet new people, speak another language, eat exotic food, engage in adventures, play sports and games, swim, ski, bike, run, or enjoy countless other fascinating experiences. What you don't want is to be injured, sick, incapacitated, or so wiped out that you can't enjoy your trip!

Homeopathy can save your trip – literally. It can provide very effective treatment for first aid, acute, and chronic medical conditions. You just need a little extra knowledge and some low-cost, nontoxic natural medicines that can get you back on your feet and feeling better in short order. Some of you may not be familiar with the use of homeopathic medicine, but this brief introduction to travel remedies is all that you need to get started. For those of you who would like more, we recommend our newest book, *The Savvy Traveler's Guide to Homeopathy and Natural Medicine*, or our newly revised book *Homeopathic Self-Care* for a more in-depth approach to using homeopathy while traveling and for acute illnesses at home.

Wouldn't you like to be able to treat yourself for such trip spoilers as joint pain, sunburn and burns, insect bites and stings, poison ivy and oak, traveler's diarrhea, nausea and vomiting, colds and flu, exhaustion, motion sickness, and the fear of flying? With even this relatively brief introduction, you start healing yourself, your family, and friends on the ground, in the air, on the sea, on top of a mountain, or in the middle of the jungle!



### What is Homeopathy?

Homeopathy is form of natural medicine developed over 200 years ago by Samuel Hahnemann, a practicing German physician, medical translator, and scientist. His mission was to find a simpler, less harmful form of treatment than the harsh medicinal treatments of the early 19th century. He succeeded, and homeopathy today is used for both acute and chronic illness, and has remained consistently effective since Hahnemann's time. It is enjoyed as an alternative and complementary form of medicine by millions of people throughout the world, primarily in Europe, North America, South America, and India.

Homeopathic medicine can be a very effective treatment for many kinds of illness. In this column, we cover treatment for some common first-aid and acute problems that could potentially affect you or spoil your trip. By taking along a small, lightweight kit of homeopathic medicines, or just the 12 remedies in this column, you can make a real difference in your travel experience if you or your loved ones should become ill.

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# Healing with Homeopathy

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**Unique Medicine**

Homeopathy is unique, even among other forms of natural healing.

- The same substance that *causes* a set of symptoms in a healthy person can *cure* those same symptoms in someone who is ill.
- One single medicine treats the whole person constitutionally for chronic problems.
- The more the medicine is diluted, the stronger it is.
- *Any* substance from nature can be made into a homeopathic medicine. There are over 3500 medicines, made from a wide variety of animal, plant, and mineral substances.
- Homeopathy treats people, not diseases per se. It helps the body/mind heal itself
- Homeopathy is safe even for newborns, pregnant women, the elderly, highly sensitive people, or those with compromised immune systems.
- The medicines are extremely inexpensive compared with prescription drugs.
- They are in the form of small pellets or liquids, taken under the tongue.
- Manufactured by homeopathic pharmacies, the medicines are safe, effective, and regulated.

## Your 12 Homeopathic Travel Companions: Symptoms and Uses

***Aconitum napellus*** (monkshood)
- emotional trauma
- fear of flying
- anxiety and panic attacks
- shock
- ailments from exposure to cold and wind
- claustrophobia
- fear of earthquakes

***Apis mellifica*** (honeybee)
- bites and stings
- heat
- redness
- burning or stinging pain
- lots of swelling
- conjunctivitis
- hives
- allergic reactions
- anaphylactic shock
- hot and worse from heat

***Arnica montana*** (leopard's bane)
- bruising
- blunt injuries
- black eyes
- bleeding
- nosebleeds
- emotional or physical shock
- head injuries
- sprains and strains
- wants to be left alone, insisting nothing is wrong
- sore
- bruised
- worse being touched
- worse lying on the painful part
- worse with the head lower than the body

***Arsenicum album*** (arsenic)
- tremendous anxiety
- restlessness
- insomnia
- fear of flying
- fear of death
- anxiety about health
- fear of germs, contagious diseases
- despair of never recovering
- traveler's diarrhea
- abdominal cramping
- nausea
- vomiting
- diarrhea
- burning pains
- worse from fruit
- asthma
- allergies
- runny nose

***Cantharis*** (Spanish fly)
- burns, including 3rd degree
- sunburn
- severe bladder infections
- incredibly painful urination
- blood in the urine at times

***Carbo vegetabilis*** (vegetable charcoal)
- fainting or collapse
- weakness in which the person looks blue
- pulse is faint
- cold, yet paradoxically they want to be uncovered or fanned
- indigestion with a tremendous amount of gas and bloating
- feel better after belching

***Cocculus indicus*** (Indian cockle)
- motion sickness
- air sickness
- nausea
- vomiting
- upset stomach
- dizziness

- worse looking at moving objects
- nervous exhaustion, especially from caring for loved ones

***Gelsemium sempervivens*** (yellow jasmine)
- exhaustion
- influenza
- exhausted from influenza
- dizzy, drowsy, droopy, and dull
- muscle aching throughout body
- stage fright
- illness following fright

***Ledum palustre*** (marsh tea)
- insect bites and stings
- puncture wounds
- sprained ankles
- better from cold applications
- worse from warm applications

***Nux vomica*** (Quaker's button)
- indigestion
- stomach cramps
- muscle cramping and rigidity
- heartburn
- constipation
- stuffy nose
- frontal or sinus headache
- irritability
- impatience

***Podophyllum*** (May apple)
- traveler's diarrhea or dysentery
- explosive diarrhea with abdominal cramping,
- rumbling, and weakness
- diarrhea at 4:00 or 5:00 a.m. forcing the person out of bed
- profuse, gurgling, rumbling, gushing,
- painless diarrhea
- sensation of hollowness and emptiness in the stomach
- liver feels sore under right rib cage

***Rhus toxicodendron*** (poison ivy)
- stiffness of the joints
- sprains and strains with a lot of stiffness
- relieved by moving around or hot baths
- restlessness of the body
- acute and chronic arthritis
- shingles

For example, the homeopathic medicine *Apis mellifica,* made from the honeybee, can be used to treat bee stings. It can also be used effectively to treat any condition similar to a bee sting, where there is inflammation, swelling, redness and stinging pain. Conjunctivitis, an eye infection, often has similar symptoms, with swollen lids, red eyes, and stinging pain. A few doses of *Apis* when your eyes start stinging, swelling, and watering can often stop the conjunctivitis in its tracks.

*Arnica montana* is the best remedy for bruises and blunt trauma, such as a black eye, and to help stop bleeding. It also can help with shock and anaphylaxis. Because trauma and bruising are so common, *Arnica* is one of the first homeopathic medicines that people try. When the soreness and bruising go away much faster than usual, people experience directly the power of homeopathic medicines to heal.

*Rhus toxicodendron*, derived from poison ivy, is not used just as first aid to treat poison ivy but also is a major medicine for sports injuries and arthritis. In situations wherein the joint pain is better from motion and stretching, and accompanied by inflammation and swelling, *Rhus tox* will rapidly improve the situation. It is also a common medicine for herpes zoster, or shingles, which has painful, itching spots along nerve roots and symptoms quite similar those from to an exposure to poison ivy.

Since traveling and recreational activities usually involve quite a bit of motion, whether in planes, trains, and automobiles or elevators, Ferris wheels, and four-

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wheelers, 2 of the 12 homeopathic travel companions come in very handy. *Cocculus indicus* is often used when the motion causes nausea, even vomiting, but particularly when it comes from seeing moving objects, such as cars or scenery passing by. *Tabacum*, on the other hand, is when the motion is felt within the body, causing that feeling that one can experience on smoking cigarettes for the first time, where you can turn several shades of green and start vomiting, with deathly nausea.

**How to Choose the Correct Homeopathic Medicine**

Each homeopathic medicine has its own unique set of symptoms that it will be able to alleviate or cure. It isn't necessary for your illness to match all of the possible symptoms for that medicine, but simply your pattern of symptoms. In prescribing for acute illnesses or injury, you just have to match the symptoms of your health problem with those of the remedy that you are considering. The greater the pool of possible homeopathic medicines you are working with, the greater the likelihood of an exact match, and the best results. The 12 companions are a good start for trying homeopathy for your travel needs. You can certainly have success with these simple pictures of each remedy, in at least differentiating which of the 12 to use for the problem that you or your loved one is having. If none of these 12 fit, we recommend consulting the *Savvy Traveler's Guide to Homeopathy and Natural Medicine* or *Homeopathic Self-Care*.

Here is the method for choosing which of the 12 companions can help heal the health problem that is interfering with your travel plans:

1. Have the 12 or more remedies on hand if at all possible, or know where you can get them at a pharmacy or store that sells homeopathic remedies. Many pharmacies and health food stores are likely to stock the 12 companion remedies, and more in the US and Europe. In India, parts of Europe and the US, and major cities in South America, there are homeopathic pharmacies.
2. Evaluate if this is a serious problem that needs immediate professional attention in an emergency room, clinic, or hospital, or a relatively minor illness that one can treat at home or in a hotel room. If you have a serious problem, get appropriate medical attention immediately.
3. Look at the person who needs help, listen to what he says about how he is feeling, and ask any questions you may need to understand what is going on with him. Focus on where in the body the problem is, how the person is feeling physically and emotionally, and what she is doing and saying in response to having the illness or problem. Write down what she is saying and doing.
4. Scan the list of problems and symptoms in the 12 remedies and see if there is a match for the symptoms that you are treating in one or more of the remedies, even if the symptoms reported are not all exactly the same as the list. See what fits the best with what you have to work with. If two remedies are similar, find the one that most closely matches the person's symptoms and problems.
5. Read the list of problems and symptoms for each remedy again, and see which if any of the 2 or 3 possible remedies stands out as most similar to the symptoms of the illness.
6. Choose a remedy and dissolve 3 pellets in the mouth every 3 to 4 hours, or whenever the symptoms begin to worsen again after being better. If there are no results after three doses, choose another remedy. If the symptoms change, see if there is a better remedy among the 12.
7. When the person feels better, you can stop giving the remedy. If nothing is working, or the symptoms are severe or getting worse, seek medical attention right away.

You will find that the more possible remedies that you know about using, the better your results will be. We recommend a kit of about 35 to 50 remedies for the best results in covering most acute travel and first-aid needs. Our *Homeopathic Self-Care Medicine Kit* is a good example. We also recommend a print or electronic version of your favorite homeopathic book for minor illnesses and injuries as well.

You will surely have an opportunity to try homeopathy for your own and your loved ones' acute illness and first-aid situations at home and during your travels, wherever you may go. Don't leave home without your kit!

Judyth Reichenberg-Ullman and Robert Ullman are licensed naturopathic physicians, board certified in homeopathy. Much of the material for this column was excerpted from their upcoming book *The Savvy Traveler's Guide to Homeopathy and Natural Medicine: Tips to Stay Healthy Wherever You Go!* Their previous books include *Homeopathic Self-Care, The Homeopathic Treatment of Depression, Anxiety and Bipolar Disorder, Whole Woman Homeopathy, Ritalin-Free Kids, Rage-Free Kids, A Drug-Free Approach to Asperger Syndrome and Autism, The Patient's Guide to Homeopathic Medicine*, and *Mystics, Masters, Saints and Sages: Stories of Enlightenment*. New editions of *Ritalin-Free, Whole Woman Homeopathy*, and *Homeopathic Self-Care* should be available as of this writing, as well as electronic and free miniversions of all of the books. The doctors live on Whidbey Island, Washington, and in Pucón, Chile, and practice at the Northwest Center for Homeopathic Medicine in Edmonds, Washington. They treat patients by phone and videoconference as well as in person. They can be reached at 425-774-5599, drreichenberg@gmail.com, or drbobullman@gmail.com. Their website is www.healthyhomeopathy.com.

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# Monthly Miracles

by Michael Gerber, MD, HMD
contact@gerbermedical.com

## An Amazing Lupus Case

Chronic illness is a great challenge for all physicians. Having a great outcome is genuinely heartwarming for all, patient and physician alike.

P. G., a 58-year-old woman from near Palm Springs, California, in the hazardous–waste disposal business, had a 25-year history of lupus erythematosus, Sjögren's syndrome, fibromyalgia, hypothyroidism, herpes zoster, and osteoporosis. At our initial consultation, she had pains in all her joints, especially her hands; three ribs recently had spontaneously fractured; and she volunteered that she couldn't turn on her shower. She was on Plaquenil for the last 23 years 200 mg b.i.d., cyclosporine 400 mg b.i.d., and Vicodin several per day, many episodes of IV steroids, and 6 months of Cytoxan in 1995.

He hair analysis from Doctor's Data revealed high levels of aluminum, antimony, cadmium, lead, nickel, silver, tin, and titanium.

**Therapeutic Interventions**

We began with our usual bioidentical hormone support, Nature-Throid, high-dose progesterone cream 60 mg 4 x/ day, à la Dr. Michael Platt, adrenal complex shots with B12 and folic acid weekly. Neural therapy with procaine and Zeel, followed with procaine, triamcinolone, and ozone to her painful back and neck areas with additional procaine to her abdominal scars and procaine with Spascupreel to her headache points and Ah Shi points on neck and shoulders. This provided immediate relief for her pain for several weeks. We started oral chelators, EDTA, DMSA, chlorella, garlic, cilantro, and alpha-lipoic acid.

She tested positive for many viruses and we treated her for adenovirus, coronavirus, Coxsackie, CMV, ECHO, enterovirus, EBV, HSV-1, HSV-2, and HSV zoster all diluted to 3X, 12X, 30X, and 200X 0.1cc injected into Spleen 6 for 12 days alternating ankles. We are happy to provide this mix to any physicians requesting it. It is an amazing therapy for these acute and chronic viruses and has been around Reno for about 30 years, first created by John Diamond, MD, HMD; bless his soul.

**Major Therapies**

As I have discussed in the case of reversing severe eye disease (Integrative Ophthalmology, *Townsend Letter*, August/September 2012), incorporating Peyer's patches (Pleo Rebas) and Pleo Fort (*Penicillium roqueforti*) was paramount. Remember Dr. Thomas Rau's teaching that 70% of the body's immune system resides in the intestines and 90% of the T lymphocytes are made in the Peyer's patches. If the Peyer's patches are injured from antibiotics or environmental toxins, then they don't make enough T cells. The diminished number of T cells then can become hyperreactive and autoimmune. By reimplanting the Peyer's patches and Pleo Fort, we restore the soil of the bowel (immune integrity) and reduce autoimmunity. We gave Pleo Rebas and Pleo Fort caps alternating 1 a.m. and 1 p.m. for 1 month and then gave the rectal suppositories alternating MWF of Pleo Rebas and TTS of Pleo Fort for 6 weeks before bed. At the end of this period, she was able to go off all medications and has been pain free for over one year.

Additionally, she has been on Pleo Muc eyedrops to improve her eye circulation and Extension Resveratrol for additional antiautoimmune therapy with Natrum Muriaticum up to 200C for homeopathic support.

Her lupus blood profile and ANA are now negative. She rides her bike every day and is pain free. This is but one case, and it gives us hope.

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# Anti-Aging Medicine

by Ronald Klatz, MD, DO, and
Robert Goldman, MD, PhD, DO, FAASP
www.worldhealth.net

## An Anti-Aging Perspective on GI Health

As we age, a wide array of changes occur in the function of the gastrointestinal (GI) system, which collectively can affect the absorption of nutrients from food. These aging-related changes may involve the following issues:

- Decreased ability of the intestinal walls to hold and absorb nutrients makes older people highly sensitive to minor bodily insults.
- Malabsorption can be caused by low levels of gastric acids, possibly compounded by gastric hypochlorhydria with small-bowel bacterial overgrowth.
- Age-related changes in gastro-intestinal-associated mucosal immune response.
- Alterations in the structure of the intestines and in the membrane composition of the intestine. This can cause decreased absorption of some nutrients, such as fatty acids.

As well, there is strong evidence that GI health is linked to health of the body's numerous other systems, from cardiovascular to neurological.

In this column, we review recent study findings indicating natural and nutritional approaches that may help to optimize the function of your GI system as you age.

### Probiotics Slash Cold Risk

Daily supplementation with *Bifidobacterium*, a probiotic, may help to reduce the risk of the common cold, among active adults.

Allan W. Cripps and colleagues from Griffith University (Australia) enrolled 465 healthy men and women, average age 36 years, to one of three groups: the first group received a dietary supplement containing 2 billion colony forming units (CFU) of *Bifidobacterium lactis* subsp. *lactis* B1-04, the second group received a combination probiotic consisting of *Lactobacillus acidophilus* and *Bifidobacterium animalis* subsp. *lactis* B1-07, and the third group received a placebo. The participants took their designated pill for 150 days. At the study's conclusion, the researchers observed that the subjects who received *Bifidobacterium lactis* subsp. *lactis* B1-04 had a 27% reduced risk of upper respiratory tract infections, as compared with placebo. In addition, the group experienced a delay in the time to reach an illness episode, of 0.7 months (as compared with placebo). The study authors conclude: "The [*Bifidobacterium lactis*] probiotic appears to be a useful nutritional supplement in reducing the risk of URTI in healthy physically-active adults."

West NP, Horn PL, Pyne DB, et al. Probiotic supplementation for respiratory and gastrointestinal illness symptoms in healthy physically active individuals. *Clin Nutr*. 10 October 2013.

### Probiotics May Influence Depression

The GI tract is home to millions of bacteria, and previous studies have suggested that supplementation of "good" bacteria in the form of probiotics can help to support key functions of the body, including immune and nervous systems. Timothy Dinan and colleagues from the University College Cork (Ireland) have further explored the possible impact of probiotics on behavior. The team advances the notion of a "psychobiotic" – a live organism that, when ingested in adequate amounts, produces a health benefit in patients suffering from psychiatric illness. The researchers review the evidence that these bacteria offer enormous potential for the treatment of depression and other stress-related disorders. Some psychobiotics have been shown to have anti-inflammatory effects. This is important because depression and stress are both associated with inflammation in the body. Infectious diseases, such as syphilis and Lyme disease, can also produce depressive states. Evidence suggests that immune activations, perhaps via psychobiotic action, could alleviate such states. According to the study authors, "The intestinal microbial balance may alter the regulation of inflammatory responses and in so doing, may be involved in the modulation of mood and behavior."

Dinan TG, Stanton C, Cryan JF. Psychobiotics: a novel class of psychotropic. *Biol Psychiatry*. 2013 Nov 15;74(10):720–726.

### Probiotics Promote Healthful Weight

Previous studies demonstrate that the intestinal flora of obese individuals differs from that of people of normal weight. Some scientists speculate that this difference may be due to the fact that a diet high in fat and low in fiber promotes certain bacteria at the expense of others. Angelo Tremblay

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and colleagues from Laval University (Canada) enrolled 125 overweight men and women to undergo a 12-week weight-loss diet, followed by a 12-week period aimed at maintaining body weight. Throughout the entire study, half the participants swallowed 2 pills daily containing a strain of the probiotic *Lactobacillus rhamnosus*, while the other half received a placebo. After the 12-week diet period, researchers observed an average weight loss of 4.4 kg in women in the probiotic group, as compared with 2.6 kg in the placebo group. After the 12-week maintenance period, the weight of the women in the placebo group had remained stable but the probiotic group had continued to lose weight, for a total of 5.2 kg per person. In other words, the women consuming probiotics seemed to have lost twice as much weight over the 24-week period of the study. Researchers also noted a drop in the appetite-regulating hormone leptin in this group, as well as a lower overall concentration of the intestinal bacteria related to obesity. They speculate that probiotics may act by altering the permeability of the intestinal wall and keep certain pro-inflammatory molecules from entering the bloodstream, which may help to prevent the chain reaction that leads to glucose intolerance, type 2 diabetes, and obesity.

Sanchez M, Darimont C, Drapeau V, et al. Effect of Lactobacillus rhamnosus CGMCC1.3724 supplementation on weight loss and maintenance in obese men and women. *British J Nutr*. 2 Dec. 2013.

### Greens May Support GI Health

Eating your greens may be even more important than previously thought, with the discovery that an immune cell population essential for intestinal health could be controlled by leafy greens in the diet. Specific immune cells, the innate lymphoid cells (ILCs), are found in the lining of the digestive system and protect the body from "bad" bacteria in the intestine; evidence suggests that ILCs also play an important role in controlling food allergies, inflammatory diseases, and obesity, and may even prevent the development of bowel cancers. Gabrielle Belz and colleagues from the Walter and Eliza Hall Institute (Australia) have discovered that the gene T-bet is essential for producing a population of these critical immune cells and that it responds to signals in food. Revealing that T-bet is the key gene that instructs precursor cells to develop into ILCs, which it does in response to signals in the food that we eat and to bacteria in the gut, the team submits that the proteins in green leafy (cruciferous) vegetables are known to interact with a cell surface receptor that switches on T-bet, and might play a role in producing ILCs. Writing, "Understanding the biology of ILCs and the genes that are essential for generating them will help us to develop methods of targeting these cells," the lead investigator posits: "This might include boosting ILCs in situations where they may not be active enough, such as infections or some cancers, or depleting them in situations where they are overactive, such as chronic inflammatory disease."

Rankin LC, Groom JR, Chopin M, et al. The transcription factor T-bet is essential for the development of NKp46<sup> + </sup> innate lymphocytes via the Notch pathway. *Nat Immunol*. 2013 Mar 3.

### Tea and Grape Compounds for GI Health

Polyphenols – antioxidant compounds abundantly present in black tea and red grapes – may help to improve the ecosystem of the human gastrointestinal tract. Netherlands researchers investigated the role of polyphenols from dietary sources on the ecosystem of the gut. Using an in vitro model of the gut microbiota, the researchers assessed the effects of polyphenols from black tea and red grapes. The team observed that the black tea polyphenols stimulated *Klebsiella*, *Enterococcus*, and *Akkermansia* microbes and that red grape extract stimulated *Klebsiella*, *Alistipes*, *Cloacibacillus*, *Victivallis*, and *Akkermansia*. Submitting, "The study shows that these complex polyphenols in the context of a model system can modulate select members of the human gut microbiota," the study authors observe: "Black tea polyphenols have differential effects from red grape polyphenols."

Kemperman RA, Gross G, Mondot S, et al. Impact of polyphenols from black tea and red wine/grape juice on a gut model microbiome. *Food Res Int*. October 2013;53(2):659–669.

To stay updated on the latest breakthroughs in natural approaches to promote gastrointestinal health, visit the World Health Network (www.worldhealth.net), the official educational website of the A4M and your one-stop resource for authoritative anti-aging information. Be sure to sign up for the free Longevity Magazine e-journal, your weekly health newsletter featuring wellness, prevention, and biotech advancements in longevity.

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# Calendar

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**MAY 28-30: METABOLISM, DIET AND DISEASE 2014: Cancer and Metabolism** in Washington, D.C. CONTACT: http://www.metabolism-diet-and-disease.com

**MAY 29-31: THE INSTITUTE FOR FUNCTIONAL MEDICINE ANNUAL INTERNATIONAL CONFERENCE-Functional Perspectives on Food and Nutrition: The Ultimate Upstream Medicine** in San Francisco, California. CONTACT: https://www.functionalmedicine.org/AFMCP

**MAY 30-JUNE 1: MATRIX REFLEX TESTING (MRT) BASIC COURSE** with Dr. Louisa Williams in Corte Madera, CA. Dental issues and more. CONTACT: (415) 460-1968, info@radicalmedicine.com; http://www.radicalmedicine.com.

**MAY 30-JUNE 1: WORLDLINK MEDICAL presents ART OF CARING IN MEDICINE** featuring Gregory Petersburg, D.O. in Tucson, Arizona. AMA PRA Category 1 credits. CONTACT: 888-222-2966; http://www.worldlinkmedical.com/courses/art-of-caring/

**MAY 30–JUNE 2: MEDICINES FROM THE EARTH HERB SYMPOSIUM** in Black Mountain, North Carolina. Topics: Dietary medicine and cancer; herbs for trauma and loss; environmental influences on autoimmunity; ADHD updates and options; targeting hypercoagulation for cancer. CONTACT: 541-482-3016; http://www.botanicalmedicine.org

**MAY 31: NUTRITIONAL PERSPECTIVES ON NEUROLOGICAL DISORDERS** with Court Vreeland, DC, DACNB in Boca Raton, Florida. Also, **JULY 12** in Austin, Texas; **SEPTEMBER 13** in Charlotte, North Carolina; **NOVEMBER 8** in Daytona Beach, Florida. CONTACT: Biotics Research, 800-231-5777; http://www.bioticsresearch.com

**MAY 31: RESTORING GROUND REGULATION** @ Westin San Francisco Airport in Millbrae, California. Combined use of homeopathy, botanicals, and nutritionals for acute and chronic issues. CONTACT: Grant Clarke, 415-613-3341; gclarke@goenergetix.com; http://www.bioenergeticresources.com

**MAY 31-JUNE 1: CLINICAL APPLICATIONS AND ADVANCED TOPICS OF IV NUTRIENT THERAPIES IN ONCOLOGY** in Chicago, Illinois. CONTACT: http://ivnutritionaltherapy.com/seminars/

**JUNE 6-7: BASTYR UNIVERSITY presents AURICULOTHERAPY ADVANCES IN PAIN & ADDICTION TREATMENTS** in Kenmore, Washington (near Seattle). CONTACT: 425-602-3152; http://www.bastyr.edu/continuing-education

**JUNE 6-8: ACUPUNCTURE & ELECTRO-THERAPEUTICS IN CLINICAL PRACTICE** in New York City, New York. CONTACT: Yoshiaki Omura, M.D., Sc.D, 1-212-781-6262; icaet@yahoo.com; http://www.icaet.org/seminars.html

**JUNE 7-8: ARIZONA NATUROPATHIC MEDICAL ASSOCIATION SPRING CONFERENCE** in Scottsdale, Arizona. CONTACT: 480-921-3088; http://www.AzNMA.org

**JUNE 7-8: BASTYR UNIVERSITY presents ESOTERIC ACUPUNCTURE** in Kenmore, Washington (near Seattle). CONTACT: 425-602-3152; http://www.bastyr.edu/continuing-education

# MarketPlace

**JUNE 21-22: HEAVY METAL TOXICOLOGY: Chelation Therapy Including EDTA, DMPS, and Oral Chelation Drugs** in Phoenix, Arizona. CONTACT: http://ivnutritionaltherapy.com/seminars/

**JUNE 27-28: TREATING TICK-BORNE DISEASE USING INTEGRATIVE THERAPIES** in Burlingame, California. Joseph Burrascano MD, Kristine Gedroic MD, Raj Patel, MD, Susan McCamish, herbalist. AMA CMEs, CA Naturopathic CMEs. CONTACT: (303) 499-1223; http://www.healthymedicineacademy.com; info@healthymedicineacademy.com,

**JULY 11-13: HORMONE ADVANCED PRACTICE MODULE - Re-establishing Hormonal Balance in the Hypothalamic, Pituitary, Adrenal, Thyroid, and Gonadal Axis** in Denver, Colorado. CONTACT: https://www.functionalmedicine.org/Hormone

**JULY 11-13: DETOX ADVANCED PRACTICE MODULE-Understanding Biotransformation and Recognizing Toxicity: Evaluation and Treatment in the Functional Medicine Model** in Denver, Colorado. CONTACT: https://www.functionalmedicine.org/Detox

**JULY 12: NUTRITIONAL PERSPECTIVES ON NEUROLOGICAL DISORDERS** with Court Vreeland, DC, DACNB in Austin, Texas. CONTACT: Biotics Research, 800-231-5777; http://www.bioticsresearch.com

**JULY 17-21: ONDAMED 20 YEAR ANNIVERSARY** in the Black Forest of Southern Germany. CONTACT: +1 845-534-0456/0, support@ondamed.net; http://www.ondamed.net

**JULY 26: UNDERSTANDING, EVALUATING & ADDRESSING AUTOIMMUNE DISORDERS** with William Kleber, DC, DABCI in Daytona Beach, Florida. CONTACT: Biotics Research, 800-231-5777; http://www.bioticsresearch.com

**AUGUST 6-9: AMERICAN ASSOCIATION OF NATUROPATHIC PHYSICIANS' (AANP's) 29th ANNUAL CONFERENCE** in Phoenix, Arizona. CONTACT: http://www.naturopathic.org/AANP2014

**AUGUST 29-31: WORLDLINK MEDICAL presents MASTERING THE PROTOCOLS FOR OPTIMIZATION OF HORMONE REPLACEMENT THERAPY** featuring Neal Rouzier, M.D. in Salt Lake City, Utah. 18.5 CME Credits. CONTACT: 888-222-2966; http://www.worldlinkmedical.com/courses/bhrt-series/part-i/may-2014

**AUGUST 30-SEPTEMBER 1: CANCER CONTROL SOCIETY presents its 42nd ANNUAL ALTERNATIVE THERAPIES CANCER CONVENTION** @ Sheraton Universal in Universal City, California. **SEPTEMBER 2:** Doctors' Symposium. CONTACT: 323-663-7801; http://www.cancercontrolsociety.com

**SEPTEMBER 3: BUS TOUR OF MEXICAN CANCER CLINICS** starts in Universal City, California. Also, **SEPTEMBER 13.** CONTACT: 209-529-4697; frankcousineau@yahoo.com

# Calendar

**SEPTEMBER 8-12: APPLYING FUNCTIONAL MEDICINE IN CLINICAL PRACTICE-A Five-Day Foundational Course in Functional Medicine** in Scottsdale, Arizona. CONTACT: https://www.functionalmedicine.org/AFMCP

**SEPTEMBER 10-13: AMERICAN ACADEMY OF ANTI-AGING MEDICINE FELLOWSHIP MODULES, BHRT SYMPOSIUM & BOARD CERTIFICATION EXAMS** in Phoenix, Arizona. CONTACT: 888-997-0112; http://www.A4M.com

**SEPTEMBER 15-17: PREVENTING OVERDIAGNOSIS @** Oxford University in Oxford, United Kingdom. CONTACT: http://www.preventingoverdiagnosis.net

**SEPTEMBER 17-20: INTERNATIONAL PLANT-BASED NUTRITION HEALTHCARE CONFERENCE** in San Diego, California. CONTACT: http://pbnhc.com/

**SEPTEMBER 19-21: INTEGRATIVE MEDICINE FOR MENTAL HEALTH 5th ANNUAL CONFERENCE** in San Antonio, Texas. Presented by Great Plains Laboratory. CONTACT: http://www.greatplainslaboratory.com/home/eng/kc_training.asp

**SEPTEMBER 20: MASTERING THE SCIENCE OF INTEGRATIVE BLOOD CHEMISTRY** with Abbas Qutab in Windsor Locks, Connecticut. Also, **NOVEMBER 15** in Charlotte, North Carolina. CONTACT: Biotics Research, 800-231-5777; http://www.bioticsresearch.com

**SEPTEMBER 20: A DIFFERENT LOOK AT THYROID, CHOLESTEROL & DIABETES USING BLOOD CHEMISTRY** with William Kleber, DC, DABCI in Naples, Florida. CONTACT: Biotics Research, 800-231-5777; http://www.bioticsresearch.com

**SEPTEMBER 26-28: INTERNATIONAL COLLEGE OF INTEGRATIVE MEDICINE CONFERENCE on PAIN** in Dearborn Inn, Michigan. CONTACT: http://www.IntegrativeMedicineConference.com

**OCTOBER 4: PERSPECTIVES ON NEUROLOGICAL DISORDERS** with Court Vreeland, DC, DACNB in Bethesda, Maryland. Also, **DECEMBER 6** in Windsor Locks, Connecticut. CONTACT: Biotics Research, 800-231-5777; http://www.bioticsresearch.com

**OCTOBER 8-12: AARM RESTORATIVE MEDICINE CONFERENCE-Integrating Hormones, Nutrition and Herbal Medicine for Treating GI Disorders and the Origins of Chronic Disease** in Santa Fe, New Mexico. Earn up to 30 CME hrs. CONTACT: http://www.RestorativeMedicine.org

**OCTOBER 10-11: 30TH ANNUAL SYMPOSIUM ON ACUPUNCTURE, ELECTRO-THERAPEUTICS AND RELATED LATEST DEVELOPMENTS IN INTEGRATED MEDICINE** in Belgrade, Serbia. CONTACT: Yoshiaki Omura, M.D., Sc.D, 1-212-781-6262; icaet@yahoo.com; http://www.icaet.org/seminars.html

# Kyowa Hakko USA Announces GRAS Self-Affirmation for the Amino Acid L-Citrulline

Kyowa Hakko USA Inc. (Kyowa Hakko USA), the wholly owned subsidiary of Kyowa Hakko Bio Co. Ltd. (Kyowa), has announced that it has completed GRAS (generally recognized as safe) self-affirmation for the valuable amino acid L-citrulline.

L-citrulline is an amino acid that plays an important role in nitric oxide (NO) metabolism and regulation. L-citrulline is converted to L-arginine in the body to support L-arginine and NO levels. Increased production of NO promotes vascular dilation, which improves oxygen and blood circulation throughout the body. L-citrulline is also expected to relieve muscle fatigue through ammonia elimination. Antioxidant action and heart protection are also known.

"We are extremely proud to announce GRAS for our amino acid L-citrulline, and look forward to working with manufactures to incorporate it into foods and beverages," said Dr. Toshikazu Kamiya, president and CEO of Kyowa Hakko USA.

L-citrulline is preservative free and allergen free, and contains no artificial flavors or colors. Manufactured in the US using a proprietary fermentation process, L-citrulline is an ultrapure amino acid that carries the Kyowa Quality logo, ensuring that this ingredient is backed by our commitment to the highest manufacturing standards.

L-citrulline will be marketed by Kyowa Hakko USA as a food ingredient in the US for use at levels of 275 mg of L-citrulline/serving up to a maximum of 2000mg/day in various food products, such as beverages and beverages bases, grain products and pastas, and milk products.

Kyowa Hakko USA is the North American sales office for Kyowa Hakko Bio Co. Ltd., an international health ingredients manufacturer and world leader in the development, manufacturing and marketing of pharmaceuticals, nutraceuticals, and food products. Kyowa is the manufacturer of amino acids and related compounds as well as Cognizin Citicoline, Pantesin Pantethine, Setria Glutathione, and Sustamine L-Alanyl-L-Glutamine. For more information, visit http://www.kyowa-usa.com. ◆

**OCTOBER 28-NOVEMBER 3: 41ST BIOLOGICAL MEDICINE TOUR TO GERMANY & BADEN-BADEN MEDICINE WEEK: Clinical Applications in Biological Medicine.** Program includes participation in the famous 'Medicine Week' Congress, exclusive OIRF English language lectures from renowned German clinicians and researchers as well as instrumentation, clinic and pharmacy presentations. CONTACT: Occidental Institute, 800-663-8342 or 250-490-3318; fax 250-490-3348; support@oirf.com; http://www.oirf.com

**OCTOBER 31-NOVEMBER 2: WORLDLINK MEDICAL presents MASTERING THE PROTOCOLS FOR OPTIMIZATION OF HORMONE REPLACEMENT THERAPY** featuring Neal Rouzier, M.D. in Nashville, Tennessee. 18.5 CME Credits. CONTACT: 888-222-2966; http://www.worldlinkmedical.com/courses/bhrt-series/part-i/october-2014/

**NOVEMBER 6-9: ENERGY REGULATION ADVANCED PRACTICE MODULE** in Miami, Florida. CONTACT: https://www.functionalmedicine.org/Energy

**NOVEMBER 6-9: GI ADVANCED PRACTICE MODULE-Restoring Gastrointestinal Equilibrium: Practical Applications for Understanding, Assessing, and Treating Gut Dysfunction** in Miami, Florida. CONTACT: https://www.functionalmedicine.org/GI

**NOVEMBER 7-10: HEALTHY MEDICINE ACADEMY'S FOURTH ANNUAL INTEGRATIVE CANCER MEDICINE SYMPOSIUM** in Phoenix, Arizona. Focus on clinical applications. Keynote Speaker: Keith Block, MD, the father of integrative oncology. 32.25 AMA; 36 ND CMEs; & more. CONTACT: (303) 499-1223; http://www.healthymedicineacademy.com; info@healthymedicineacademy.com.

**NOVEMBER 8: A HOLISTIC APPROACH TO OVERCOMING THYROID DISORDERS** with David Brownstein, MD in San Antonio, Texas. CONTACT: Biotics Research, 800-231-5777; http://www.bioticsresearch.com

**NOVEMBER 8-9: ARIZONA NATUROPATHIC MEDICAL ASSOCIATION FALL CONFERENCE** in Scottsdale, Arizona. CONTACT: 480-921-3088; http://www.AzNMA.org

**DECEMBER 10-13: AMERICAN ACADEMY OF ANTI-AGING MEDICINE ANNUAL WORLD CONGRESS, FELLOWSHIP MODULES & BOARD CERTIFICATION EXAMS** in Las Vegas, Nevada. CONTACT: 888-997-0112; http://www.A4M.com

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# Nordic Naturals Sets Standard for Omega-3s

Omega oils have become an essential component of every health protocol. Because they are in high demand, many professional brands have added omega-3 fish oil products as a line extension. That's where Nordic Naturals differs.

Since 1995, omega-3 nutrition has remained the passion and focus of Nordic Naturals. As a brand that specializes in one thing, Nordic Naturals is uniquely positioned to partner with health-care professionals in sharing the power of omega-3s with patients.

Nordic Naturals is an industry leader in omega-3 fish oil supplementation, setting standards for purity, freshness, taste, and sustainability. The company offers over 150 products in a variety of flavors, concentrations, and delivery forms.

With a reputation for efficacy and potency, Nordic Naturals fish oils and essential fatty acid blends are regularly chosen by independent research institutions and universities, with more than 30 published scientific studies and more than 30 in progress.

Nordic Naturals is a privately held company, and is committed to remaining so. It carefully considers customer experience, and controls every aspect of product quality.

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# Women's Health Update

by Tori Hudson, ND
womanstime@aol.com

## Fish Oils and Stomatitis; Probiotics and IBD

### Fish Oils and Stomatitis: Another Use of Fish Oils

This parallel-design, double-blind, placebo-controlled study was conducted in an outpatient clinic of oral medicine and periodontology in Egypt. Fifty participants were divided randomly into a control group that included 10 men and 15 women who received placebo soft gel capsules and a treatment group that included 12 men and 15 women who received 1500 mg of fish oil in soft gel capsules, with each omega-3 capsules providing 200 mg of DHA and 300 mg of EPA, and took 1 capsule 3 times daily for 6 months. The follow-up period was 3 months and 6 months.

Eligible participants were those > 13 years old, a history of recurrent minor aphthous ulcer for at least 1 year with a frequency of at least one episode per month, 1 to 3 current aphthous ulcers that were less than 48 hours old and 5 mm or less in size, normal sense of pain and no anesthesia or paresthesia. Patients were excluded if they had a systemic disorder that can manifest as ulcers, on systemic steroids, antibiotics, NSAIDs (unless just for occasional headaches), or immunomodulatory agents.

The primary outcome was the number of ulcers, the duration of the ulcers, and level of pain due to the ulcers. Each participant met the research personnel once per month for 6 months to report monthly symptoms. Measurements of oral health were done at baseline and at 6 months using the Oral Health Impact Profile 14 (OHIP-14) questionnaire.

All 50 participants (22 men and 28 women) completed the study, with 25 in the placebo group and 25 in the fish-oil group. The results from the placebo group showed no statistically significant difference in the average number of new ulcers each month, the average visual analog pain score, the average duration of ulcer episodes, and the mean OHIP-14 scores. The results from the omega-3 group regimen showed sustainable benefits on all the clinical parameters measured at month 3,4, 5, and 6, as well as the OHIP-14 score at the 6-month study end point.

This daily dose of omega-3 fish oils achieved a significant reduction in the number of ulcers, the duration of ulcers, and the level of pain by the 3-month juncture that was sustained through the 6-month end of the study, as well as significant improvements in the OHIP-14 score by 6 months.

**Comment**: It just plain makes sense that this would be another use of fish oils. Animal and human studies relentlessly demonstrate the ability of omega-3 polyunsaturated fatty acids to competitively inhibit the production of arachidonic acid metabolites. This downregulatory mechanism of EPA/DHA is likely involved in reducing tissue damage. Effective conventional therapies for the management of patients with recurrent oral aphthous ulcers include a low dose of doxycycline (20 mg b.i.d.), colchicine, and prednisone, all showing significant improvement in size, number of lesions, severity of pain, reduced recurrence, and more pain-free episodes. However, these medications come with a meaningful list of potential side effects. Other natural-therapies research has included oral propolis 500 mg/day for at least 6 months. I will look forward to trying this dosing of fish oils for this condition and not having to worry about side effects, all the while achieving other highly relevant preventive benefits from the fish oils.

El khouli A, El-Gendy E. Efficacy of omega-3 in treatment of recurrent aphthous stomatitis and improvement of quality of life: a randomized, double-blind, placebo-controlled study. *Oral Surg Oral Med Oral Pathol Oral Radiol.* 2014;117:191–196.

### Probiotics for Remission and Therapy in Colitis, Crohn's Disease, and Pouchitis

Randomized controlled trials comparing probiotics with controls in inflammatory bowel disease and data related to remission/response rates, relapse rates, and adverse events were included in this meta-analysis. A total of 44 potentially eligible studies were identified, and of those, 23 randomized controlled trials met the

inclusion criteria. RCTs were searched using MEDLINE 1966 to March 2013, EMBASE 1980 to March 2013, the Cochrane Controlled Trials Register first quarter of 2013, OVID 1950 to March 2013, BIOSIS 1996 to December 2012, and the Chinese Biomedical Database 1981 to December 2012. Any comparative studies of probiotics and IBD were identified. Study quality was assessed using the Jadad score system with possible scores from 0 to 5. All studies with Jadad scores <4 were excluded. The 23 randomized controlled trials enrolled a total of 1763 participants from 1997 to 2011. Twelve studies were for ulcerative colitis (UC), 7 for Crohn's disease (CD), and 4 for pouchitis. The length of follow-up ranged from 1 to 24 months, with 7 of the trials evaluating remission or response rates, 11 evaluating relapse rates, and 5 evaluating both. Three of the trials evaluated relapse rate via endoscopy. Three of the studies were in children.

The remission rates in patients with active UC were significantly higher in probiotics patients than with placebo. Because different probiotics were used for remission/response in UC, the trials were subdivided into *Bifidobacteria*, *E. coli*, and VSL#3 (a probiotic mixture of live lyophilized *Bifidobacterium breve*, *B. longum*, *B. infantis*, *Lactobacillus acidophilus*, *L. plantarum*, *L. paracasei*, *L. bulgaricus*, and *Streptococcus thermophilus*). The meta-analysis results suggested that only VSL#3 significantly increased the rate of remission/response. VSL#3 also significantly reduced the clinical relapse rates for maintaining remission in patients with pouchitis. A total of 16 trials that reported clinical relapse rates in maintaining remission included data for 1208 patients, of whom 637 received probiotics to maintain treatment and 571 received controls for a follow-up period from 2 to 42 months. There was significant benefit in favor of probiotics and lower relapse rates for these patients, which as well was similar to conventional treatment with 5-aminosalicylic acid (5-ASA). There were no clear benefits of probiotics in Crohn's disease.

**Comment:** Probiotics showed definite implications for inducing remission and improving remission rates in those with active UC as well as maintaining remission rates. Maintaining remission rates of IBD with probiotics reduced the recurrence rates similarly to treatment with 5-ASA. What is not clear is the choice of probiotic, optimal dose, and duration. The combination of eight species of probiotics in the VSL#3 and the distinctly positive results with that product might be explained just by how the combination of species may provide a stronger effect on the epithelial barrier and the tight junction protein downregulation than a single species.

Many mechanisms abound here, including restoring microbial balance, modulating mucosal epithelium, protecting against pathogens, inducing immune responses, and modifying gut lymphoid cells; and the research on probiotics for all kinds of disorders, intestinal and otherwise, is nothing short of robust.

Shen J, Zuo Z, Mao A. Effect of probiotics on inducing remission and maintaining therapy in ulcerative colitis, Crohn's disease and pouchitis: Meta-analysis of randomized controlled trials. *Inflamm Bowel Dis.* 2014;20:21–35.

Dr. Tori Hudson graduated from the National College of Naturopathic Medicine (NCNM) in 1984 and has served the college in many capacities over the last 28 years. She is currently a clinical professor at NCNM and Bastyr University; has been in practice for over 28 years; and is the medical director of the clinic A Woman's Time in Portland, Oregon, and director of research and development for Vitanica, a supplement company for women. She is also a nationally recognized author, speaker, educator, researcher, and clinician.

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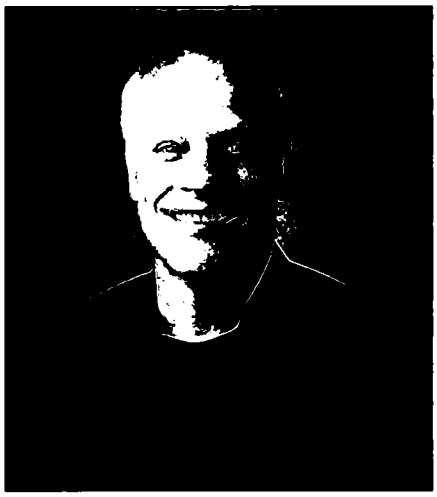

# A General Approach to Inflammation and Autoimmune Disease

This issue of the *Townsend Letter* focuses on inflammation and autoimmune disease. While medical treatment should be individualized for each patient, certain basic factors should be considered in most cases in which the goal is to decrease inflammation and stop the immune system from attacking the body's own tissues.

**Dietary Factors**

Levels of C-reactive protein (CRP; an indicator of inflammation) are higher in obese people than in people of normal weight. Weight loss has been shown to decrease CRP levels, with the decrease being proportional to the amount of weight lost.[1] In intervention trials, measures of inflammation have been reduced by increasing fruit and vegetable intake, consuming a low-glycemic-index or low-glycemic-load diet, or adhering to a Mediterranean diet that contained olive oil.[2-5]

The way in which foods are cooked may also influence the amount of inflammation and autoimmunity. Advanced glycation end products (AGEs) are produced during the heating of common foods, particularly when the foods are cooked at high temperatures or in the absence of moisture. AGEs are absorbed from food intact and persist in tissues, where they can modify protein structures, potentially increasing their immunogenicity. In addition, consumption of foods high in AGEs has been shown to increase markers of inflammation. The AGE content of foods can be decreased substantially by emphasizing boiling, poaching, and stewing over frying, grilling, and roasting. Raw foods contain only negligible amounts of AGEs, which might explain in part why raw-food diets have been reported to improve the symptoms of rheumatoid arthritis.[6]

Food allergy has been reported to be an important contributing factor in many inflammatory and autoimmune diseases, including rheumatoid arthritis, systemic lupus erythematosus, ulcerative colitis, Crohn's disease, thrombophlebitis, eosinophilic esophagitis, multiple sclerosis, aphthous stomatitis, and uveitis.[7] In my experience, identifying and avoiding allergenic foods by means of an elimination diet is often the most important component of the treatment plan for patients with these types of conditions.

**Nutritional Supplements**

Eicosapentaenoic acid (EPA), an omega-3 fatty acid, has an anti-inflammatory effect, which results from the fact that it is an alternative substrate to arachidonic acid (an omega-6 fatty acid) in prostaglandin and leukotriene biosynthesis. As compared with arachidonic acid (which is converted in part to certain pro-inflammatory prostaglandins and leukotrienes), EPA is converted to the less pro-inflammatory series 3 prostaglandins and leukotriene B5.[8,9] Numerous studies have demonstrated that supplementation with fish oil (a major source of EPA) results in a moderate degree of improvement in patients with rheumatoid arthritis and several other diseases that have an inflammatory component.

Omega-6 fatty acids are commonly thought to be pro-inflammatory, because linoleic acid (the major omega-3 fatty acid in the diet) is converted in part to arachidonic acid, which is a precursor for pro-inflammatory eicosanoids such as prostaglandin E2, leukotriene B4, and thromboxane A2. However, the metabolism of omega-6 fatty acids is complex, and as I pointed out in an editorial in the November 2012 issue of the *Townsend Letter*, the evidence that they promote inflammation is very weak. In fact, borage oil, which contains a high concentration of the omega-6 fatty acid gamma-linolenic acid, has been found to be at least as

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# Townsend Letter

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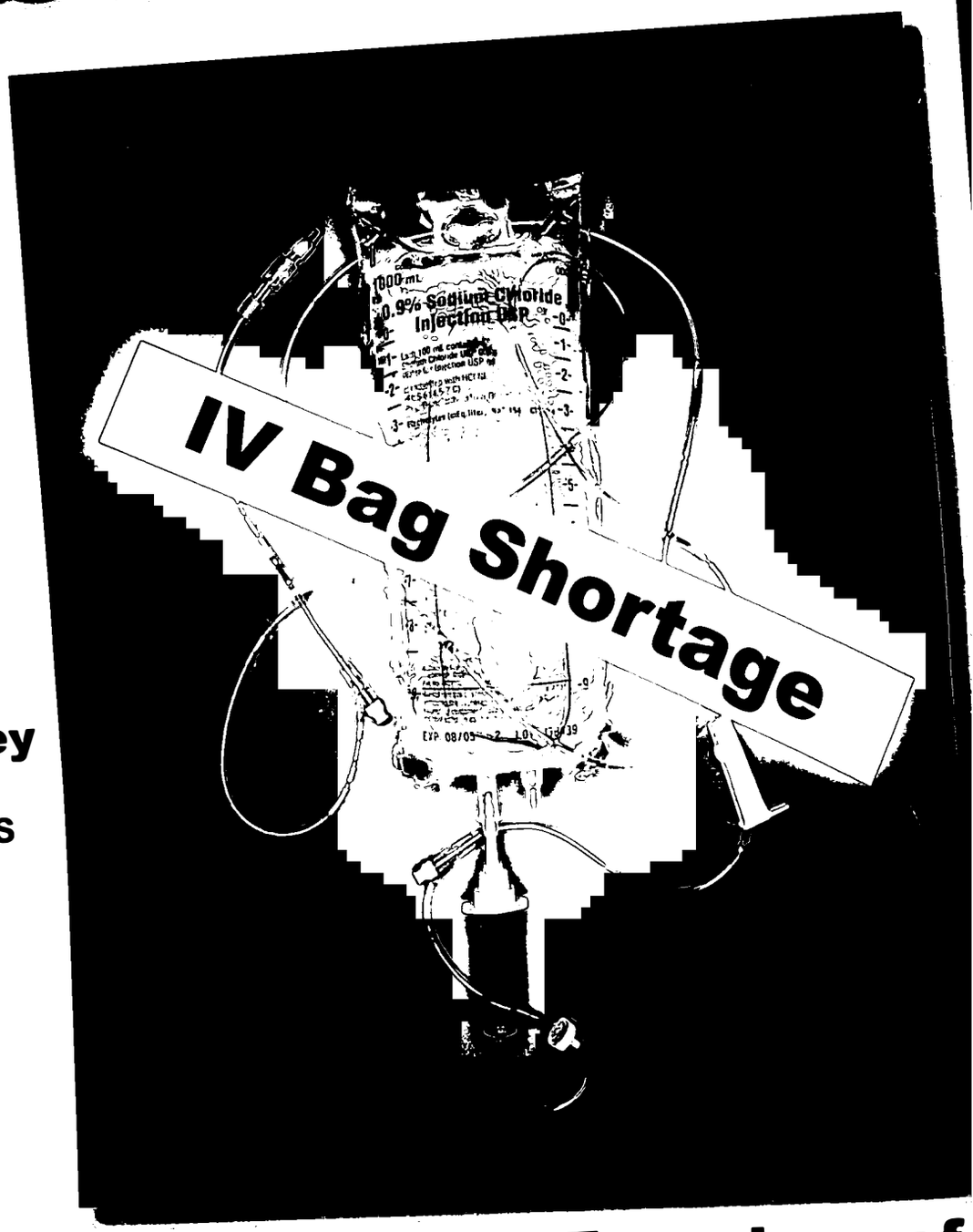


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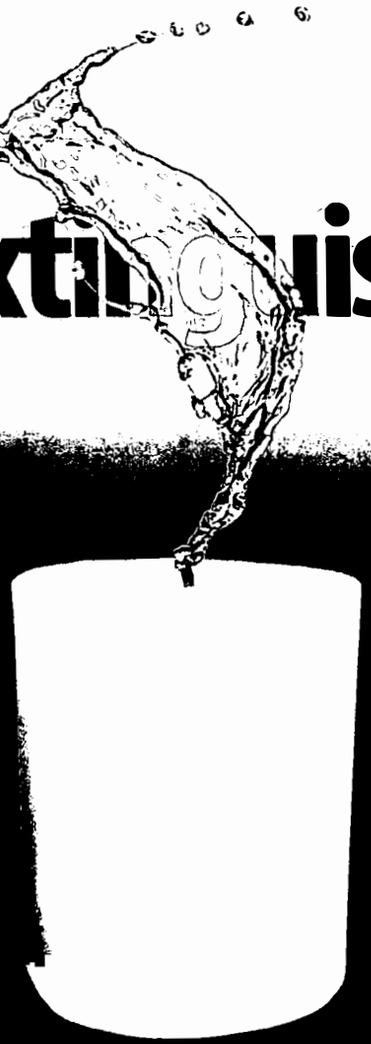
TOWNSEND LETTER
#371
INFLAMMATION | AUTOIMMUNE DISEASE | GI DISORDERS

# Extinguish the flame



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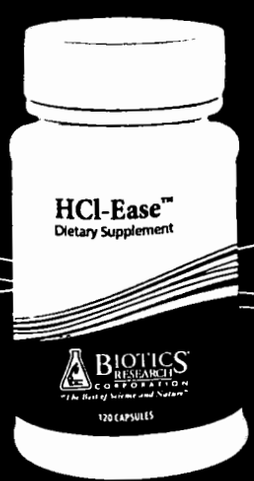


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- Louis Cady, MD
- Hyla Cass, MD
- Kelly Brogan, MD
- Stephen Genuis, MD
- Bill Code, MD
- Trudy Scott, CN
- Mark Filidei, DO
- David Zeiger, DO

## Learning Objectives:

- Discover an approach to investigating and addressing persistent mental and physical chronic illness.
- Learn about the evidence to support considerations of nutritional factors and non-medication interventions for the treatment of mental health disorders.
- Learn metabolic mechanisms whereby chemical toxicants induce harm and cause chronic illness.
- Gain familiarity with physiologic imbalances, modifiable through diet and lifestyle interventions that can manifest as depression and anxiety such as thyroid imbalance, dysglycemia, and food intolerance.
- Learn about the theory and application of cytokine models of depression and the relevance of the gut/brain axis.
- Attendees will be introduced to various detoxification interventions which facilitate elimination of toxicant bioaccumulation.
- Awareness of the utility of brain imaging in helping to diagnose and treat mental health conditions.
- Learn different SPECT scan patterns for ADD, OCD, dementia, and other mental health conditions.
- How the optimization of hormones can eliminate the need for many psychoactive medications.
- The critical role of thyroid hormone in mental health.
- New concepts for the treatment of ADHD in children, adolescents, and adults.
- Targeted supplements for mind, mood, and memory.
- New insights into the treatment of schizophrenia.
- Neuroendocrine and immune imbalance in depression and anxiety.
- Breaking the cycle of the addicted brain.
- Transcranial Magnet Stimulation (TMS) for the treatment of depression.
- And more!

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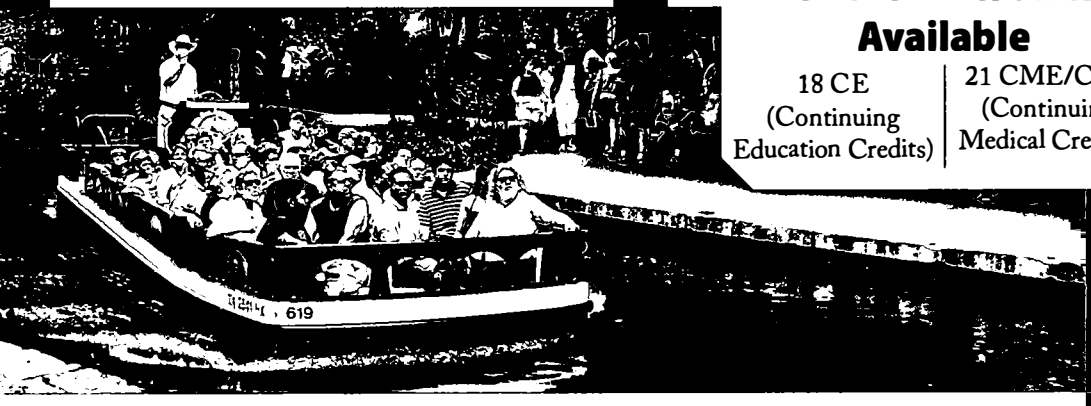

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**NOTE: It is very important to use patients with significantly elevated lactic acid levels before doing this test or the test will only have marginal results. It is best to choose a severe diabetic, a patient with significant and ongoing weight problems, or a patient that has an infection with a lactic acid bacterium (Staph or Strep) and is not currently on antibiotics.**

Assuming you have a patient with elevated lactic acid, simply draw a vile of blood to perform a lactic acid blood test from your preferred lab. Then give the patient 32 ounces of mineral-free or steam-distilled water to drink that has 1 ounce to 1 ½ ounces of pHenomenal mixed into it.

Have them consume the mixed pHenomenal in as short an amount of time as they can comfortably drink it. Between 10 to 15 minutes from the time they finished the mixed water draw a second vile of blood for another lactic acid blood test.

In almost all cases you will find a significant drop in blood lactic acid from the first test to the second and this is further confirmed by how the patient will report "feeling". Generally pain will go down dramatically and increased energy and the symptoms of lactic acidosis (or sepsis) which was mentioned earlier will dramatically reduce.

What's happening? Since the pH scale is logarithmic the advantage of drinking mixed pHenomenal, 32 ounces at a mixed ratio of one ounce of concentrate to 31 ounces of mineral-free or steam-distilled drinking water, yields approximately one liter (946 milliliters) at a remarkable 11pH. The cost to the patient is approximately $1.20.

**Compared to a 500 milliliter bicarbonate drip at an 8.5 pH, the mixed pHenomenal taken orally is approximately** 867 times more alkaline or **867 times stronger neutralizing acidity in the body.**

Some of this alkalinity may be neutralized in the stomach, but with the overwhelming power of this product the neutralizing action that occurs in the stomach has proven to be insignificant.

Because pHenomenal is a "Hydroxide" meaning an unstable water molecule that is no longer H2O but has been modified to H1O (or properly "OH") when it finds a free hydrogen it simply binds the hydrogen to the empty valance and becomes H2O or water again. You can further research this on http://www.naturalpartners.com

**The results produced by drinking pHenomenal as outlined above cannot be duplicated by using water produced from "Alkaline Water Machines"**. Perform a comparison test if you wish to confirm this statement.

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Diabetics, people with ongoing weight problems, those with bacterial infections, and others with elevated lactic acid levels are prime candidates for using pHenomenal.

## Why Is pHenomenal *Different* Than Alkaline Water Drops, Alkaline Water Machines, And Intravenous Bicarbonate Drip?

With a double-patented process, it is made using heat, magnetism, and a small amount of alkaline buffers. This procedure allows the creation of a stabilized concentrate by removing a high percentage of the hydrogen - the acid part of water. This concentrate is an incredible 12.75 pH and yet is entirely non-caustic which is unprecedented in any other form of mineralized concentrate.

Because pHenomenal is a "Hydroxide", meaning an unstable water molecule that is no longer H2O but has been modified to H1O (or properly OH), when it finds a free hydrogen - acidity in the human body - it simply binds the hydrogen to the empty valance and becomes H2O or water again.

Also, pHenomenal remains stable in that it will never lose its alkalinity until it is consumed and binds with acid. It's 100% naturally derived from pure water with only a little calcium added as a stabilizer.

It's safe and completely non-caustic.

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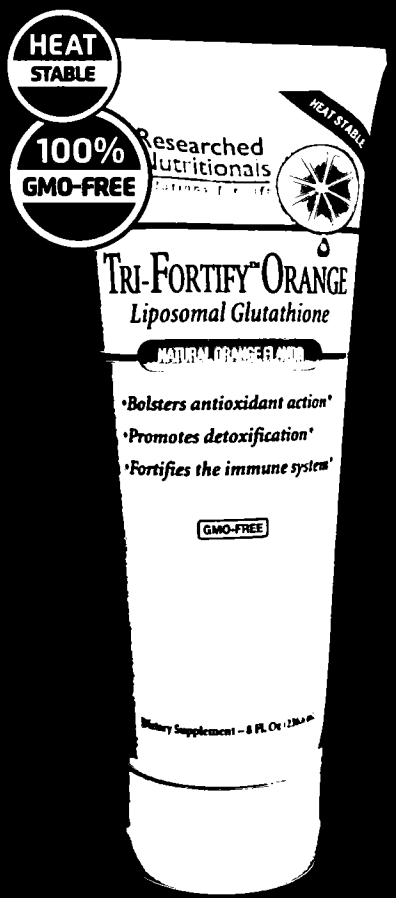


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Each serving offers:

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- 50 mg of Vitamin C

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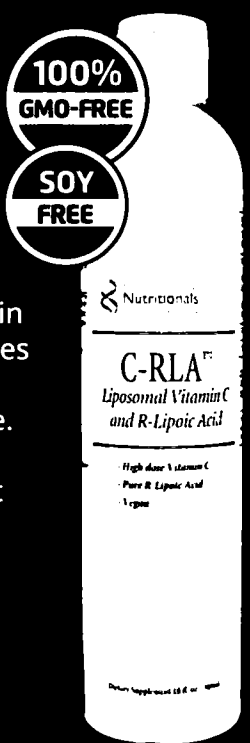


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Each serving contains 1500 mg of Vitamin C and 70 mg of R-Lipoic Acid in a natural, GMO-free liposomal preparation. As most oral Vitamin C doses above 250 mg are very poorly absorbed, the only efficacious high dose oral delivery system is via liposomes from natural phosphatidyl choline. Many doctors supplement in-office Vitamin C drips with C-RLA™ so the patients continue to receive the benefit of high-dose Vitamin C without stomach distress.

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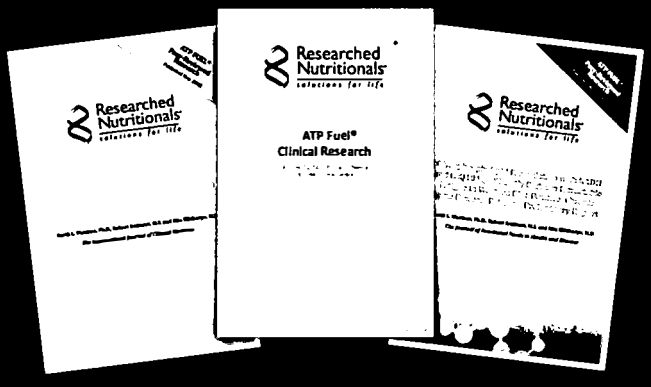


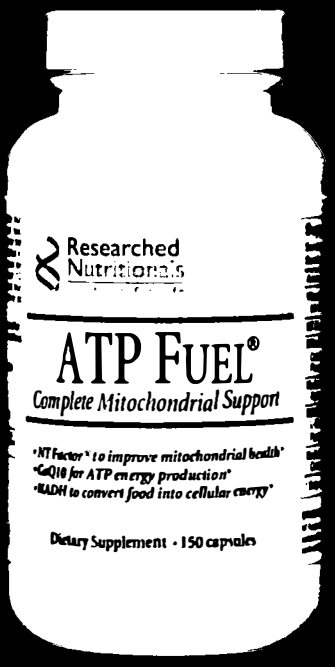



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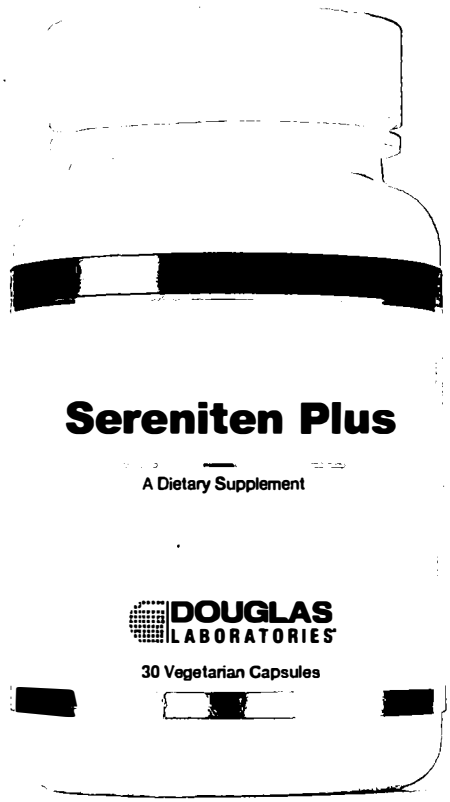


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effective as fish oil as a treatment for rheumatoid arthritis.[10]

Other nutrients that have demonstrated an anti-inflammatory effect include zinc, copper, magnesium, vitamin C, and vitamin E.

**Other treatments**

Dehydroepiandrosterone (DHEA), a steroid hormone produced in the adrenal glands and gonads, has demonstrated efficacy in several clinical trials in the treatment of systemic lupus erythematosus. The dosages used in those studies were usually 100 to 200 mg per day, a pharmacological dose. In my experience, and according to anecdotal reports from others, lower doses (such as 10–25 mg per day), when used in combination with other interventions, are sometimes beneficial for patients with autoimmune diseases including rheumatoid arthritis, dermatomyositis, ulcerative colitis, and Crohn's disease.

Epidemiological and anecdotal evidence suggests that exposure to various environmental toxins (such as pesticides, solvents, and heavy metals) may promote the development of inflammatory and autoimmune diseases. A detoxification program should be considered in selected cases.

Alan R. Gaby, MD

**Notes**


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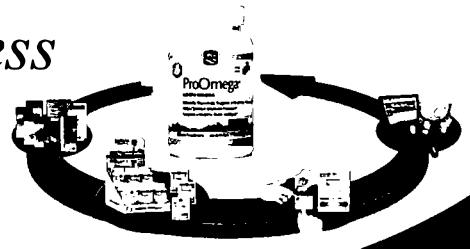


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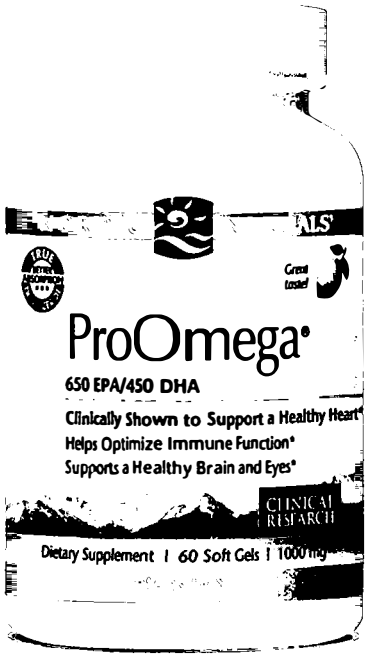


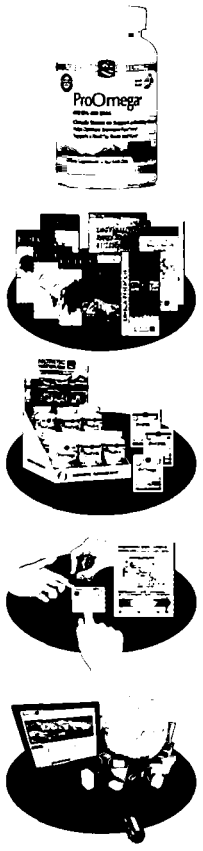


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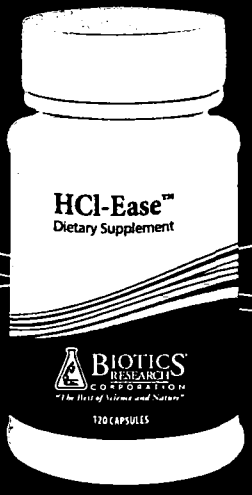


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