NATUROPATHIC DOCTOR NEWS & REVIEW

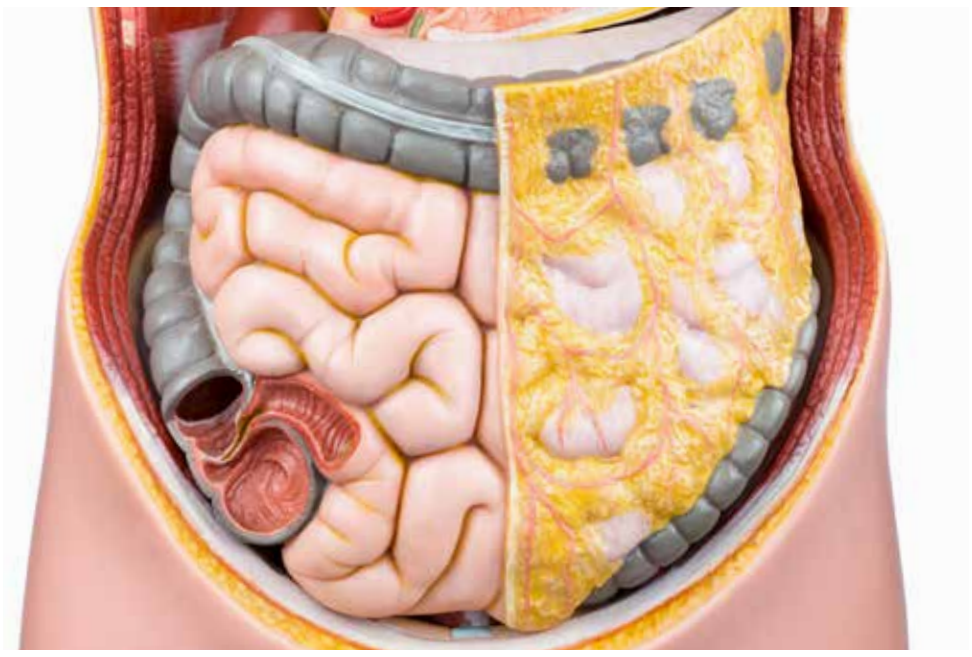
VOLUME 14 ISSUE 8 AUGUST 2018 | PEDIATRICS

Tolle Totum

The Leaky Gut/Allergy Catch-22

Underlying Trigger for Myriad Health Concerns

CHRIS D. MELETIS, ND



Increased intestinal permeability – otherwise known as leaky gut – is associated with a surprising number of health concerns, including seasonal allergies, autoimmune disorders (eg, rheumatoid arthritis), migraines, depression, and Alzheimer's, among others that I will address later in this article. Athletes and postmenopausal women are also susceptible to impaired intestinal permeability. Yet, unless patients with these conditions have comorbid gastrointestinal (GI) issues, they often are not tested for leaky gut or the associated food sensitivities that serve as a red flag

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Selective Eating

If Food Is Medicine, What Can We Do for Picky Kids?

TERESA NEFF, ND, CLE

As naturopathic physicians, we enthusiastically encourage our patients to eat a varied diet that nourishes their bodies. Adult patients who struggle to eat healthfully can generally reason themselves into making acceptable food choices. Kids, however, do not reason. If we are what we eat, how do we establish optimal health foundations among our youngest patients?

A Close-up Look at Picky Eating

Every child goes through a phase of picky eating, usually from about 2 to 4 years of age. A normally developing child will suddenly eschew a few foods he used to eat, but will maintain reasonable variety without argument. Keep this in mind: toddler nutrition occurs over the course of a week. In other words, toddlers do not need protein, greens, and super-foods at every meal, or even every day. So, a child who will eat various proteins, vegetables, fruits, and grains, albeit unpredictably, is developing typically.

A true picky eater rejects most foods, and may begin to do so even before 2 years of age. Parents who have to bribe the child to come to the table, and bribe them again to stay long enough to eat 4 bites, are parenting a picky eater. Kids who will only eat apple sauce, peanut-butter sandwiches, and sliced-up hot dogs, are picky eaters. In other words, true picky eaters would rather skip the meal altogether or will eat only a small number of foods.

A New DSM Diagnosis

A relatively new diagnosis – Avoidant/Restrictive Food Intake Disorder (ARFID) – was added to the DSM-5 in May of 2013. Although it can be summarized as extremely selective eating, ARFID is defined as the avoidance or restriction of food for a reason other than wanting to control weight or address concerns with body image; it is distinct from anorexia nervosa and bulimia nervosa.[1] The food restrictions must also not be attributable to cultural or religious practices, or food scarcity. In ARFID, the dietary restrictions lead to weight loss, failure to gain weight, nutritional deficiency, impaired psychosocial functioning, or reliance on nutritional supplements or enteral feeding to achieve appropriate caloric intake.[1] If the disordered eating can be explained by another diagnosis (whether medical or mental health), it is not considered ARFID. However, if the eating pattern is more extreme than would be expected with that particular other diagnosis, ARFID may still be diagnosed.

Prevention Is the Best Medicine

A child's best chance to avoid selective

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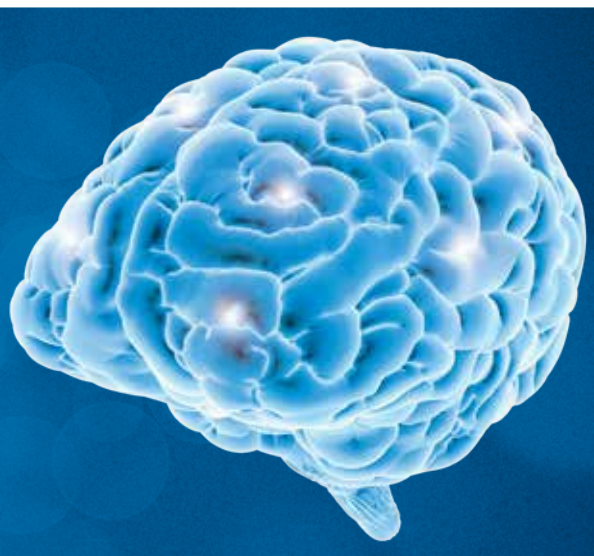

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Steve Austin, ND

May 14, 1947 – March 10, 2018

JACOB SCHOR, ND, FABNO

Our friend and mentor, Steve Austin, passed away late last winter, close enough to the Ides of March that he would have noticed and made a comment about it had he had been allowed the opportunity.

My contact with Dr Austin was sparse in recent years, and I regret having let that happen. It's like when you put some special leftovers in your refrigerator to save for a special snack and, next thing you know, weeks have gone by and now the Tupperware contains only a microbiology experiment. I took such enormous pleasure in knowing Steve that I saved up my excuses to write him, and somehow held off for too long.

Our last conversation was in the late spring of the year the AANP conference was in Bellevue, WA, so that would have been 2012. Steve was on our schedule to be a keynote speaker, to do one of his phenomenal nutrition review lectures. We were hammering out the final financial negotiation. I think he was going to save money by taking the train up from Portland, OR, rather than flying. The AANP was being tight with expenses that year. Well, Dr Austin did a sudden about-face and changed his mind about the lecture. He explained that he had recently purchased a new piano and would rather be playing it than reading PubMed. I didn't blame him in the least. I was a bit surprised, though, as I didn't know he played the piano. There are a lot of things about people we don't know.

It turns out that Steve was an accomplished jazz piano player. Friends of his tell me that they could always engage Steve in conversations about jazz and in listening to classical jazz music. He had an unsurpassed breadth of knowledge on jazz history. If you think he knew a lot about nutrition, that was nothing compared to what he knew about jazz. In fact, at his funeral a suggestion was made to send memorial donations to a group that sponsors jazz concerts.

Many of us were also unaware that Steve and his wife, Cathy Hitchcock, had a lifelong and very intense interest in what are called "historically correct house interiors." Their own homes were works of art and they helped many other people develop a sensibility of interior house design by serving as historical consultants. Their work appeared in numerous home tours, books, and national magazines. They were featured on the television show, *This Old House*.

Steve and Cathy had every intention of retiring to Galveston, TX, and living happily ever after in a restored 1907 townhouse they had purchased. Making the big move, they drove to Texas in 2008. Their moving day coincided with the day Hurricane Ike struck Galveston. Ike flooded the city and their new home. While their belongings were in a moving van still heading for Texas, their house was badly damaged. Cathy and Steve survived and endured both the storm's aftermath and the 2008 stock market crash. They restored their Texas house to its original Victorian perfection (Figures 1,2), even hand-stenciling wallpaper. But when done, the house was sold and they returned home to Portland.

It was in his capacity as a teacher, lecturer, and writer that most of us knew Dr Austin. He received bachelors degrees in psychology and human biology from Antioch College (Class of 1969). He graduated from the National College of Naturopathic Medicine (NCNM) in Portland, OR, in 1982. This was the class that attended their first 2 years of training at Kansas Newman College in Wichita, KS.

Dr Austin served on the faculties of 4 naturopathic colleges in North America. He taught nutrition at NCNM and Western States Chiropractic College, both in Portland. He also taught nutrition at Bastyr University in Seattle. He co-authored several books as well as edited several medical nutrition review journals, and acted as a consultant to the natural products industry.

He trained a generation of naturopathic physicians and chiropractors in nutritional science; many of us are still indebted to him for modeling a style of careful reading and data analytics that informs our practices to this day. Some of us are past subscribers to his monthly journal, *Clinical Nutrition Updates*. He went on to become a regular contributor to Don Brown's *Quarterly Review of Natural Medicine*. He was on the original editorial board of the *Natural Medicine Journal* (NMJ). I still open and read one of his early NMJ articles when I sit down to write, in the hope of better emulating his style. It is only in hindsight that as I read his writing I think about his playing of jazz. Steve's flow of ideas and the way he circles back around to a central theme, his rhythm of speech, his improvisation, the echoing melody of a central thought – all of these things now make me realize why I enjoyed listening to him speak or even to read his thinking: he was always playing music.

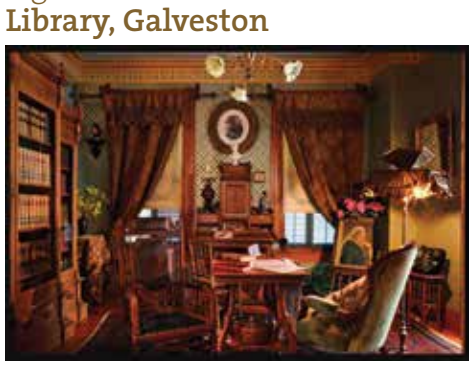
His 1994 book, co-authored with Cathy Hitchcock, *Breast Cancer: What You Should Know (But May not Be Told) About Prevention, Diagnosis, and Treatment*, recounted Cathy's personal encounter with breast cancer. While the science may now be dated, the book retains its value, as it details the emotional impact and response both had to the experience. The deep and lasting concern Steve expressed between the lines still reads, at least to me, like a love story.

Steve's voluminous knowledge of nutrition and his natural ability as a teacher led him to lecture at international nutrition conferences. As mentioned, for many years Steve alternated with Alan Gaby to give the keynote nutrition lecture at the annual AANP. Steve received a 2-hour speaking slot and never had trouble filling it or keeping people in the room longer if he ran over.

I have a 3-ring binder in which I've saved my copies of Dr Austin's quarterly *Clinical Nutrition Updates*. They were initially printed in the AANP's newsletter. Paul Bergner would repackage those columns and mail them to subscribers. Neither got rich from this project. This was back in the days when if you wanted to communicate with people, you purchased a bulk-mailing permit from the post office, printed mailing labels, and sorted your newsletter by zip codes. They did this for about 4 years; their subscriber list reached maybe 400 people, or at least that's what Paul recalls.

Figure 1. **Austin-Hitchcock Parlor, Galveston**

Figure 2. **Austin-Hitchcock Library, Galveston**



I still have every issue and have been reading through them once again. They are scored with yellow highlighting. I used to study every paragraph. At the time, there was nowhere else to obtain this sort of refinement of information. The internet was still a thing of the future. I don't know if PubMed even existed; if so, it certainly wasn't free. Dr Austin's words were prized possessions for this devoted reader. I may not have memorized every word, but I wasn't far from it.

How much things have changed since then! I try to imagine if then was now. The closest equivalent to Dr Austin's newsletters might be Josh Goldenberg's Doctor's Journal Club. But, of course, these are only online videos (https://drjournalclub.com/about-dr-goldenberg/). I suppose, where I once sat at my desk at night reading and highlighting, people now sit with a cell phone and watch Josh do this thing. While it seems to me that we have lost ground, the new tech version is more economical. We once paid money for that quarterly mailing.

I try to keep up with Josh's updates in the same way I once did with Steve's written newsletters. They are both like the homework assignments you actually look forward to doing. Of course, old cranky guys invariably admit (or at least pretend) to preferring the written word.

Paul Bergner in an email echoed my own thoughts about Steve Austin: "I learned a lot not just about the field, but about critical thinking in the scientific literature, and even about how to keep up weekly with research topics, which I have maintained ever since I learned the practice from him in the early 1990s. I consider him an important mentor…"

Steve had a lot of interests and did many things with great passion. Teaching us to think was just one of them.

Sincerely,
Dr Jacob Schor

Note: Memorial donations can be made to Preservation Hall (www.preshallfoundation.org) or to George Fendel Presents – jazz piano concerts at Classic Pianos (4320 SW Corbett Ave. #306, Portland, OR 97239). Include a note on the check stating "in memory of Steve Austin."

Continued from top of page 1

for the presence of increased intestinal permeability. In this article, I will discuss the link between leaky gut and food allergies/sensitivities, as well as how this correlation may contribute to the pathogenesis or progression of a number of diseases. My clinical philosophy is to test patients when allergens and sensitivities are suspected, to help ensure that the food they are consuming is indeed "Good Medicine and Does no Harm."

Leaky Gut: How & Why It Occurs

The intestinal epithelial lining and factors secreted from it serve as a barrier to prevent the passage of toxins, antigens, and bacteria in the lumen from entering the bloodstream while also allowing for optimal nutrient absorption. When this barrier is compromised, leaky gut results. The foundation of this barrier consists of only a single layer of specialized epithelial cells joined by tight-junction proteins. However, additional factors are involved in intestinal barrier support, including mucins, antimicrobial molecules, secretory IgA (sIgA), and cytokines.[1]

The most abundant immunoglobulin in the body, sIgA is found on intestinal mucosal surfaces where it interacts with commensal bacteria to protect against pathogens, toxins, and other irritants. Every day, the human body synthesizes and deposits approximately 3 grams of sIgA into the intestinal lumen.[2] Although other aspects of gut barrier function can sometimes compensate for a decline in sIgA,[2] optimal levels of this immunoglobulin are important for gut health. Secretory IgA is also secreted in other mucous membranes, such as in the oral cavity, where it protects against viral, bacterial, and parasitic assaults. In the intestinal tract, sIgA is secreted when there is an immune reaction to foods.[3]

While underproduction of sIgA can result in impaired gut-barrier function (and increased intestinal permeability), dysregulation of zonulin, a physiological modulator of intercellular tight junctions, also poses a threat to gut barrier integrity.[4] Zonulin plays a role in intestinal innate immunity.[4] It is upregulated in animal- and human-derived intestinal epithelial cells exposed to the wheat protein gliadin, impairing gut barrier function and increasing intestinal permeability by weakening tight junctions.[5-7]

Zonulin upregulation also is linked to increased intestinal permeability in people with type 1 diabetes and their relatives.[8] Interestingly, in these subjects zonulin upregulation occurs before disease development, pointing to an interplay between increased intestinal permeability, environmental exposure to non-self antigens, and the pathogenesis of autoimmunity in people who are genetically susceptible to it.[8]

Factors contributing to the disruptions in intestinal integrity responsible for leaky gut include food sensitivities/allergies, exposure to environmental toxins, chronic psychological stress, a diet high in sugar and processed foods, alcohol abuse, antibiotics, and anything that results in dysbiosis of the gut microbiota. These factors can all act together to compromise gut barrier function. Athletes are also susceptible to increased intestinal permeability and associated GI problems.[9] Other factors that may predispose to the development of leaky gut include consuming a low-fiber or high-fat diet.[10,11]

Clinically, I routinely consider supplementation of glutamine and mitochondrial support for athletes that present with either decreased performance or increased GI or allergic symptoms. I find that increased intestinal permeability arising from relative depletion of glutamine, that is normally used for muscle, immune, and gut integrity, is often a key clinical consideration. Additionally, subclinical mitochondrial dysfunction may contribute to some athletes manifesting with intestinal permeability changes and decreased exertional performance.

The Catch-22 of Leaky Gut

As discussed, many factors can lead to leaky gut. However, intestinal permeability can also cause those same factors to begin with, or make them worse, leading to a vicious cycle. For example, dysbiosis of the gut microbiota contributes to leaky gut.[12,13] Intestinal microbiota assist with the production of short-chain fatty acids (SCFAs), which provide fuel for colonocytes and are important for gut health.[14] At the same time that dysbiosis of the microbiota can result in leaky gut, increased intestinal permeability can exacerbate the imbalance in gut microbiota by encouraging microbial translocation into the systemic circulation and by inducing an inflammatory state,[15] which is associated with dysbiosis.[16]

Likewise, there is a bidirectional interplay between food allergies/sensitivities and leaky gut, which is why I employ IgG/IgA testing for food allergies/intolerances in patients at risk for leaky gut. Impaired gut barrier function leading to leaky gut is involved in the development of food allergies/intolerances. This occurs when increased intestinal permeability allows undigested food particles to translocate into the bloodstream, where the immune system launches an assault on what it perceives to be a foreign, harmful substance. Conversely, food allergies/sensitivities can play a role in the etiology of intestinal permeability.[17] As I noted earlier in this article, exposure to food components such as gliadin upregulates zonulin. This ability to upregulate zonulin is an indication that food antigens are involved in tight-junction dysfunction.

Leaky gut can lead to deficiencies of nutrients such as zinc,[18] vitamin A,[19] iron,[19] and calcium,[20] creating another vicious cycle whereby intestinal permeability interferes with the absorption of nutrients and lack of nutrients weaken gut function.[18,20-22]

In type 1 diabetes, impaired intestinal barrier function has been shown to occur before the onset of the disease, indicating that it may play a role in its pathogenesis.

Associated Health Conditions

An abundance of evidence has shown that leaky gut is associated with a number of health conditions. There is also evidence that food allergies or sensitivities may be involved in the pathogenesis of many of these conditions or exacerbate the disorders in a manner that involves intestinal permeability. Moreover, I have observed in my clinical practice that testing for IgA/IgG food sensitivities and then implementing an elimination diet based on the offending foods has resulted in improvements in autoimmune disorders, mental health, and seasonal allergies.

Seasonal Allergies, Atopy, and the Gut

The connection between allergic diseases and the gut has been demonstrated in a number of studies. Gnotobiotic (germ-free) mice and animals treated with antibiotics were unusually susceptible to peanut sensitization, characterized by increased peanut-specific IgE and anaphylactic symptoms with peanut challenge.[23] However, antibiotic-treated mice colonized with a Clostridia-enriched microbiota, which is known to influence colonic immunity, were protected against food allergies through a mechanism involving intestinal barrier function.[23] Further adding to the evidence of an association between allergies and gut health are a number of human studies demonstrating that supplementation with probiotics can mitigate allergic rhinitis or atopic disease.[24-26]

A common occurrence in people with allergic rhinitis, known as oral allergy syndrome, also underscores the link between allergic diseases and the gut. This syndrome is characterized by a cross-reactivity to certain foods in people who are allergic to pollen from birch trees, ragweed, and grass. For example, patients allergic to grass pollen may also often react to peaches, oranges, celery, tomatoes, and melons, while ragweed allergy patients often react to melon, cucumber, banana, and zucchini.[27] Some estimates indicate that as many as 70% of people who are allergic to birch pollen also have allergenic reactions after eating raw fruits.[28,29] Given the contribution of food allergies/intolerances to leaky gut, it is possible that these cross-reactivities may impair gut barrier function in people with seasonal allergies or atopic disease.

Autoimmune Diseases

A leaky gut can promote the initiation and progression of autoimmune disease, especially in people who are genetically predisposed.[1] Autoimmune diseases known to be associated with increased intestinal permeability include inflammatory bowel disease, celiac disease, autoimmune hepatitis, type 1 diabetes mellitus, multiple sclerosis, and systemic lupus erythematosus (SLE).[30-34] In type 1 diabetes, impaired intestinal barrier function has been shown to occur before the onset of the disease,[1,35] indicating that it may play a role in its pathogenesis. Moreover, lipopolysaccharide (LPS), a cell wall component of gram-negative bacteria, can penetrate the intestinal epithelium and translocate into tissues, triggering the development and progression of SLE.[36] The resolution of intestinal permeability through the use of probiotic organisms is a promising approach to supporting the health of people with autoimmune diseases.[1]

Depression

Preliminary evidence suggests that intestinal permeability associated with IgG-dependent food sensitivity correlates with the etiology of depression. Overproduction of zonulin, suspected to be triggered by the wheat protein gliadin, leads to impairments in the tight-junction barrier and an increase in intestinal permeability.[37] This is thought to permit translocation of larger molecules into the bloodstream, resulting in IgG-dependent food sensitivity and an associated immune response. This may include the synthesis of proinflammatory cytokines, which could promote the development of depressive symptoms.[37]

This correlation between mood and leaky gut was demonstrated in a study of human patients with severe depression. In this study, researchers compared the serum concentrations of IgM and IgA against LPS of gram-negative enterobacteria in patients with major depression with those in normal controls.[38] Serum IgM and IgA against LPS of enterobacteria were significantly greater in patients with major depression compared to the controls, suggesting increased translocation of LPS from gram-negative bacteria in the depressed patients.

Autism

A correlation between leaky gut and autism spectrum disorder (ASD) is supported by studies showing increased levels of zonulin in patients with autism compared to controls.[39] Furthermore, gastrointestinal abnormalities, including increased intestinal permeability and dysbiosis of the gut microbiota, occur frequently in autistic children.[40] Among biopsy specimens derived from the duodenum of 12 ASD and 9 control patients, 75% of the ASD samples analyzed were characterized by lower expression of tight-junction components, indicating an impaired intestinal barrier.[41] ASD is also associated with intolerance to the dietary proteins gliadin, cow's milk protein, and soy, as indicated by an abnormal innate immune response against the endotoxin LPS.[42]

Other Conditions Related to Leaky Gut

Metabolic syndrome is another disorder linked to increased intestinal permeability. In a study of 363 individuals, higher zonulin levels correlated with higher waist circumference, diastolic blood pressure, and glucose concentrations, as well as a greater likelihood of being overweight or obese and having hyperlipidemia.[43] Leaky gut and associated bacterial translocation also have been implicated in Alzheimer's disease.[44] Postmenopausal women are also at risk of impaired gut barrier function, since estrogen naturally protects the intestinal mucous layer against oxidative damage and reduces intestinal permeability.[45] Moreover, low levels of sex steroids in mice have been shown to increase intestinal permeability, which is involved in inflammatory pathways that cause bone loss.[46] Nephropathy is another condition associated with intestinal permeability as well as the production of IgA-type antibodies against gliadin, soy, salt-extracted antigens of oat flour (HAV), and ovalbumin.[47]

Likewise, increased intestinal permeability and the resulting translocation of endotoxins into the bloodstream are implicated in migraines.[48,49] Given the association between leaky gut and migraines, it's not surprising that both IgE-specific food allergies and IgG-mediated food intolerances have been found to aggravate migraine attacks, while an elimination diet reduces headache frequency.[50,51]

The Critical Importance of Testing

Based on the number of health conditions related to leaky gut and the association between food allergies/sensitivities and increased intestinal permeability, IgA/IgG/IgE testing for food sensitivities is underutilized. The goal is to test patients in any of the high-risk groups mentioned in this article for food allergies/sensitivities and to then focus on eliminating the offending foods while simultaneously supporting gut healing through supplementation with L-glutamine, probiotics, and other relevant nutraceuticals. After 6 months on the supplements and the elimination diet, I then retest patients for food allergies/sensitivities. Once the leaky gut is fixed, many allergic and autoimmune burdens should lessen. As I convey to my patients, if we are not testing, we are guessing. Even the most theoretically advantageous food, such as avocado or beets, can be detrimental, as I have observed countless times once I have tested patients for food sensitivities or overt allergies.

References available online at ndnr.com

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Volume 14 Issue 8 | August 2018

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ISSN 2169-1614
Our printer utilizes wind-power

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Naturopathic Doctor News & Review is published and circulated as a complementary annual subscription (12 issues) to licensed naturopathic doctors (NDs) and students and graduates of CNME recognized naturopathic colleges in North America, and certain suppliers to the profession.

Annual subscriptions (12 issues) are available to other healthcare providers and NDs outside of North America: US $99; Canada & Mexico $129USD; Europe and Overseas $179USD.

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eating is to grow up in a culture of healthy food relationships. I have the privilege of speaking to baby groups about solid food introduction. I spend ample time going over the idea of growing healthy eaters. I joke with them sometimes that babies will learn to eat despite what they do. But in all seriousness, some parents make fairly grave mistakes in the process, and I am grateful for any chance to prevent those.

Since fetuses and nursing babies can detect the smell and taste of what mom has eaten, healthy food culture begins in the womb and continues with breastfeeding. Long before solid food introduction, baby should sit at the table for regular meal times and watch parents in the kitchen; bonus points are deserved for involving baby in food preparation by offering smells and explaining what is occurring in the kitchen. Baby should participate in grocery shopping; holding produce, sniffing spices, hearing the names of foods – all of these help introduce kids to the world of food. Bonus activities are shopping at farmer's markets, going to u-pick farms, and participating in vegetable gardening.

Introducing Solids Without Creating a Picky Eater

When baby is ready for solids, there are some key logistics to consider.

Timing is important. To help decrease the risk of food allergies, solid foods should be introduced *around* 6 months of age (possibly sooner), *when the baby is ready*. Keep in mind that the first taste of food can really be just that – a taste – a lick off a parent's finger just to introduce the idea of food. Signs that baby is ready for food include good motor control of the head while sitting, extreme interest in watching people eat, and increased appetite. Counsel the parents to watch for the cues, but dispel any apprehension they may have about the process. Ensure they do not wait too long; the time to introduce new textures and tastes is early, and babies are generally ready to start tasting by about 6 months.

The amount of anxiety I have seen regarding food introduction is remarkable. Babies notice our distress, and when it centers on food, odds are high that baby will adopt the same emotion. Food must be presented to baby in a "take it or leave it" fashion, with zero attachment to whether that food gets swallowed, spit out, or completely ignored.

One of the easiest ways to ensure baby is shielded from parental anxiety is to use Baby Led Weaning (BLW). In BLW, baby gets a large chunk of soft food to gnaw on. The website (BabyLedWeaning.com), book, and video all explain the details. I like it because it puts all the control in baby's hands. Parents can sit back and eat their own meals without fussing over spoon-feeding. Spoon-feeding purees can be done, and in some instances must be done. However, the clinician teaching a parent how to spoon-feed must emphasize the importance of satiety cues. The moment baby turns away, spits the food out, fails to turn toward the spoon, or pushes the spoon away, that meal is over. With either method, parents must allow baby to make a mess, and refrain from cleaning it up until the end of the meal. Wiping up the mess after every bite sends the message that messes are not allowed and that baby is therefore doing it wrong. Furthermore, children learn by making a mess; notice how they draw, build, and play – as with eating, they make a mess.

I discourage my patients from doing the airplane spoon, from begging the child to take just one more bite, and from bribing kids to eat. All of these promote the idea that the parent knows better than the baby about satiety. (Furthermore, have you ever enjoyed having someone shove a spoonful of food in your face?) Babies learn by taking control, and with so few arenas in their lives that they can control, giving them the reins over their food sends a clear message: there is no power struggle here.

Is Picky Eating the Tip of the Iceberg?

The research into selective eating is limited. In my clinical experience and in the research that is available, selective eating is often found in conjunction with psychological disorders such as anxiety, depression, sensory processing disorder, autism, and ADHD. The picky eating is likely a manifestation of the underlying disorder, and I believe it is worth our time to diagnose that disorder.

A study published in *Pediatrics* concluded that moderate-to-severe selective eating patterns are associated with concurrent and prospective psychological symptoms such as depression, anxiety, and ADHD.[2] The investigators claimed that as eating grew increasingly limited, psychological symptoms increased. The authors concluded that clinicians should intervene (seek and treat the underlying diagnosis) for even a moderately selective eater. A commentary on this study pointed out flaws with the methods used as well as the interpretation of the data, and questioned the conclusion that clinicians must address potential psychological concerns in any moderately picky eater.[3] The implication was that it could be a waste of everyone's time and energy to pursue underlying pathology and treatment in every moderate-to-severe selective eater we encounter. The commentator suggested further study.

I am of the opposite opinion. As naturopathic physicians we are trained to seek and treat the cause. Solid research would be ideal, but in its absence, the onus is on us to investigate each case of picky eating fully. Considering the links between the brain and gut, an association between picky eating and underlying pathologies makes sense.

Also consider an underlying medical diagnosis. The possibilities are numerous,

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and certainly would be narrowed down by the presence of other symptoms. Gastrointestinal disease, such as gastroesophageal reflux, cyclic vomiting syndrome, and abdominal pain (whether functional or otherwise), food allergies, and food sensitivities are all important conditions to be ruled out. In other words, food may either literally be causing pain, or the child may perceive that as the case.

A Multipronged Approach

As always, find the cause. Is the child picky with his eating because he is engaging anxious and controlling parents in a power struggle? Or is the child picky because he has an undiagnosed problem? Hint: it may be both.

For the families that are battling for control, treat the parental anxiety and need for control. Teach them that it is developmentally appropriate for children to seek control, that they learn by doing so. Point out that very few opportunities exist for a child to establish control. Explain that if food becomes an arena for power struggle, it will remain so, and the child will win, always, simply because you cannot force food down the throat. Teach them to offer food without emotional attachment and to refrain from cleaning any food mess until the meal is over. For spoon-fed babies, instruct them to pay careful attention to the baby's cues, and to end the meal as soon as the baby loses interest.

Coach them to backtrack away from allowing pickiness. Meals should be eaten at routine times, as a family, around the table, and with no distractions (such as screens). Snacks should also be eaten at routine times; no grazing allowed. Forestall guilt by acknowledging to your parents that most families will not eat every single meal, or even every single dinner, in this manner, due to busy schedules. Parents are not to make special meals for kids. There is 1 meal, and it should be served family-style. Kids get to choose what to eat and how much. This arrangement gives both parent and child an appropriate dose of control. At around 2.5 years of age, kids may start learning to serve themselves. Each meal should include 1 or 2 foods that you know the picky kid likes. The child can either bypass the rest of the meal or try it without pressure. Some people advise that the child be required to try 1 bite of everything new. I generally do not agree. I think when you are trying to back a family away from power struggles, this practice can send a convoluted message. However, there are kids who respond well to this practice. Parents are not to bribe children to eat. Make the meal fun by engaging in conversation. In addition to talking about how everyone's day went, use guided talking points. Some families use conversation-prompting cards. Others just hit certain points every time, such as what is everyone grateful for. The key is that the parents are making eating fun, while taking the focus off of the food. Give it time; it will not be an immediate turnaround.

Tread lightly in teaching these interventions to families with children on the spectrum or with sensory processing disorder. These children may respond paradoxically to the tactics listed above. For instance, social interaction for children on the spectrum can be extremely stressful and therefore not conducive to eating well. You and the family may need to think outside the box; listening to the radio or reading books at the table, while atypical, may enhance the child's ability to eat. Furthermore, these kids may have such a strong aversion to certain smells, or the presence of certain foods, that they may not be able to participate in certain family meals.

For the children who may have an underlying diagnosis, find it and treat as you see fit. Many children, especially those with sensory processing problems, gagging, vomiting, and food phobias, will benefit from occupational therapy, and possibly from physical therapy or speech therapy.

Abigail Natenshon, MA, LCSW, GCFP, is a psychotherapist specializing in children and young adults, and an expert on eating disorders. She advocates the use of Feldenkrais and Anat Baniel methods, since this process involves brain retraining. She claims these 2 methods have been "particularly successful in reorganizing and creating new neurological pathways in young and newly forming brains."[4]

In cases of ARFID, an integrative team, likely at an eating disorders clinic, will be required. The acute priority is to achieve medical stability by re-feeding, and these cases may be initially managed in the hospital. A nutritionist should ensure adequate caloric intake. Occupational and physical therapists, and other therapists, as appropriate, should lead behavior modifications. Cognitive behavioral therapy can help patients reformulate underlying thought patterns.[5] The underlying anxiety must be addressed.[6] Family therapy may be helpful.[6] The role of antidepressants and anxiolytics is unclear. The naturopathic doctor should ensure that any comorbid conditions have been diagnosed and are being treated, and should incorporate additional alternative therapies as deemed appropriate, including nutrient repletion.

What About Sneaking in Foods/Nutrients?

There are myriad ways of sneaking more nutritious foods into tastier foods. Broccoli and spinach can be ground into spaghetti sauce, roasted cauliflower can be smothered in cheesy sauce, and fish oil can be sneaked into a smoothie. I do not generally advocate that parents try these sneaks. I would much rather they achieve a food culture that empowers kids to like most foods, so that sneaking is not necessary. Furthermore, extremely picky eaters will sniff these sneaks out and refuse to eat them. Then you wind up with a frustrated parent and a kid who is now mistrustful of the sneaky parent and even more put off by food in general.

Is the child picky with his eating because he is engaging anxious and controlling parents in a power struggle? Or is the child picky because he has an undiagnosed problem? Hint: it may be both.

What is the Role of Supplements?

Since picky eaters do not get adequate nutrition from diet, supplements – particularly multivitamins and omega 3s – can be an important contribution. The difficulty is that a picky eater is highly unlikely to accept supplements. Some kids will accept gummy vitamins and omegas. You'll need to assess the need for these and weigh that against the quality of the supplement they are willing to eat and the quantity needed. In general, it is important to avoid sending the message that nutrition comes from what is essentially a candy.

Teresa Neff, ND, CLE, specializes in pediatric and adolescent primary-care medicine at the Seattle Nature Cure Clinic in Seattle, WA. Dr Teresa employs a wide range of tools, including craniosacral therapy, visceral manipulation, and constitutional homeopathy. She holds a certificate from the Simkin Center as a Certified Lactation Educator. She volunteers with PEPS, offering instruction in introducing solid foods to babies. She blogs for NaturopathicPediatrics.com and for DrTeresaNeff.blogspot.com. Dr Teresa graduated from Bastyr University and trained for 2 years at The Kids Clinic before entering private practice. She lives with her husband and two sons, all excellent eaters.

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PRP & Stem Cell Therapy

Naturopathic Regenerative Orthopedics – Part 2

NOEL PETERSON, ND, DAAPM
SAMUEL G. OLTMAN, ND

In Part 1 of our article, "Naturopathic Regenerative Orthopedics," we explained the ever-increasing need for effective osteoarthritis treatments, we reviewed the current standard of care in conventional orthopedics, and we outlined a summary of naturopathic treatment modalities. Lastly, dextrose prolotherapy was introduced as the first Regenerative Injection Therapy (RIT) that can reverse the degeneration of osteoarthritis (OA) and effectively treat OA-associated pain.

Dextrose prolotherapy, in summary, has the ability to regenerate cartilage in OA, repair tears in tendons, and strengthen/heal torn or lax ligaments – all of which reduce joint pain. It achieves these actions through attracting the body's innate healing response to tissues that are hypovascular by nature and therefore more susceptible to suboptimal healing from chronic mechanical insults. Dextrose prolotherapy is a low-cost therapy that can easily be done in-office with minimal discomfort. One major misconception about this treatment is that is works by "scarring" the target tissue. This is not correct. The action, rather, is one of reorganization and regeneration through the work of macrophages, chondrocytes, and osteoblasts. It restores normal tissue histology and function, thereby reducing pain in a multitude of different musculoskeletal conditions.

We will now discuss the next 2 RITs on the treatment hierarchy: Platelet-Rich Plasma and Adult Autologous Adipose-Derived Stem Cells. Both are therapies that biochemically harness and concentrate the *Vis Medicatrix Naturae* into an elegant medicinal product that can be directed into nearly any joint that is suffering degeneration and/or connective tissue damage.

Platelet-Rich Plasma

Platelet-Rich Plasma (PRP) injection prolotherapy utilizes the growth factors in one's own blood as the active ingredient via a method of extraction and concentration. Over 4100 PubMed articles have been published on PRP. The interest in PRP comes from the fact that platelets are packed with alpha granules, dense granules, and lysosomes. These are the blood's storehouses for over 400 different cytokines and signaling molecules that are responsible for the repair and regeneration of tissues directly through mesenchymal stem cell proliferation and chondrocyte proliferation.[1] Exposure of tissue to PRP growth factors has also been shown to be either inflammatory or anti-inflammatory depending on the method of concentration/processing and how many white blood cells (WBCs) are present in the final injection solution.[2]

Especially relevant to knee osteoarthritis (KOA), PRP increases the expression of collagen-building proteins while reducing metalloproteinase-1 (MMP-1) expression, a hallmark of inflammatory and degenerative arthropathies.[3] There have been over 150 PubMed studies published on the effect of PRP on KOA. In head-to-head clinical trials, PRP has been shown to be superior to corticosteroids, hyaluronate, non-steroidal anti-inflammatory drugs (NSAIDs), and placebo in relieving the pain and disability of KOA.[4,5] Campbell et al (2015) found that PRP was especially effective in the early stages of KOA degeneration.[6] In a randomized, placebo-controlled trial conducted by Smith et al (2016), PRP injections caused a decrease in WOMAC scores of 78%, as compared to 7% in the placebo group.[7] Similar findings have been found repeatedly in subsequent studies, mostly for the knee but also for hip OA.[8] No other treatment has matched the benefit of PRP in KOA.

In our clinic, we have observed that most chronic low back pain (CLBP) patients have MRI evidence of *multifidi fatty atrophy*. This fatty "marbling" of the muscles closest to the posterior vertebral body is both an effect and a cause of chronic low back pain. Hussein et al (2016) used MRI confirmation to show regeneration of the atrophied muscles after 3 weekly ultrasound-guided PRP injections (alone) into chronic CLBP patients, and they documented over 70% improvement in pain in patients suffering from CLBP.[9]

There have been studies done on fatty atrophy in rotator cuff muscle tears that show similar benefits as listed above, in terms of reduction of adipocytes and increases in myocytes after PRP injections into torn rotator cuff muscles.[10] PRP has also been shown to be superior to corticosteroid injections for rotator cuff tears in both pain reduction and improvement in MRI-confirmed tissue damage after 12 weeks.[11]

Much of the discrepancy in current research within the field of PRP is likely due to the heterogeneity of the substances used. "PRP" is a non-specific term that does not have a standardized definition. Therefore, different studies on PRP may be testing substances with varying concentrations of platelets, WBCs, and/or RBCs – all of which modify the

therapeutic effect. Much more research is needed in this area to determine optimal platelet concentrations, treatment frequency, and other parameters for maximal therapeutic benefit.

Adipose-Derived Stem Cell Therapy

The most recent addition to the landscape of RIT is Adipose-derived Stem Cell therapy (ASC). ASC prolotherapy utilizes the autologous mesenchymal stem cells (MSCs) and other pluripotent cells that are present in all adults. MSCs are able to differentiate into cartilage, muscle, tendon, ligament, or bone. Harvesting from adipose tissue is preferable due to the higher concentration of MSCs in adipose tissue as compared to other harvest tissues, including bone marrow.[12] While stem cells' ability to differentiate into various cell types is the most well-known characteristic of these cells, their action in exosomal and paracrine signaling likely contributes more to their observed clinical benefits. Additional reparative effects are achieved through MSC secretion of paracrine growth factors and cytokines, direct cell-cell interactions through tunneling nanotubes, and release of extracellular vesicles containing peptides, mRNA, and microRNAs that all combine to reduce inflammation and induce repair processes.[13] The body of research supporting ASC therapy for various orthopedic conditions has grown very quickly, and the results are compelling for OA, meniscal tears, chondromalacia patellae, osteonecrosis, tendinopathy, and ligamentous tears.[14]

The clinical research is very new for stem cell therapies, and there is a lack of standardization between the studies that do exist, making large reviews of evidence difficult at this time. There is, however, a growing number of molecular-mechanism studies and small clinical trials that continue to produce favorable results for stem cell procedures.

Autologous stem cells can be harvested from 2 main areas: adipose or bone marrow. We believe that adipose is superior for several reasons. First, harvesting from adipose is less traumatic to the patient than harvesting from bone marrow. Second, adipose tissue has up to a 300-times higher concentration of MSCs compared to the same volume of bone marrow aspirate.[12] Third, basic research indicates that adipose-derived mesenchymal stem cells (AD-MSC) have a stronger anti-inflammatory effect and a stronger chondrogenic effect in OA tissue than bone marrow derived MSCs.[15]

A small study recently published in the *American Journal of Sports Medicine* found that adipose-derived mesenchymal stem cell injections into the intra-articular space of the knee improved symptoms (per WOMAC score) and MRI findings over a 2-year follow-up period for patients with knee OA. This effect was found to be dose-dependent, with the patients receiving higher volumes of stem cells having a more durable effect, improving for up to 2 years before plateauing.[16] The lower-dose group saw improvement for 1 year before plateauing.

A recent in-vitro study published in *Cell Immunology* showed that AD-MSCs promote T-regulatory cell activity and inhibit TNF-alpha secretion in rheumatoid arthritis models, opening up the possibility of addressing the autoimmune process in the joint with RIT.[17]

At our clinic, we add a small amount of PRP into the stem-cell injection solution. In-vitro studies by Lang et al demonstrate that PRP in combination with mesenchymal stem cells increases stem cell proliferation through platelet-derived growth-factor stimulation.[18]

Summary

OA is a debilitating condition, the morbidity of which will only increase in coming years. Regenerative orthopedics and the associated injection therapies are effective, safe, and utilize the body's own healing power to accomplish the restoration of natural function. Movement is a primary need for the human body and mind. Therefore, restoring the ability to be physically active by reducing pain and joint dysfunction should be a priority for every physician with every patient. Dextrose prolotherapy, PRP, and adult stem cell therapies are all techniques that should be top of mind when evaluating patients for joint pain and musculoskeletal dysfunction. Movement is the key to health, and naturopathic regenerative orthopedics is the *Vis Medicatrix Naturae* at work. It can be a crucial piece of keeping patients moving throughout their lives.

References available online at ndnr.com

Noel Peterson, ND, DAAPM, has practiced in Lake Oswego, OR, since 1978, where he has provided decades of broad-based naturopathic medical care. Dr Peterson is the medical director of Oregon Regenerative Medicine, is certified in prolotherapy by the AAOM, and is a diplomat of the AAPM. He has extensive teaching experience in regenerative medicine, and serves as faculty for the American Association of Orthopaedic Medicine's prolotherapy. Oregon Regenerative Medicine (ORM) has served as a CNME-accredited residency training site as well as a site for multi-discipline physicians learning to perform platelet-rich plasma prolotherapy and stem cell therapy protocols developed at ORM.

Samuel G. Oltman, ND, is a naturopathic physician specializing in regenerative orthopedics at Oregon Regenerative Medicine in Lake Oswego, OR. After graduating in 2015, Dr Oltman completed a 2-year CNME-accredited residency in SE Portland, focused on family medicine. He has since received specialized training in regenerative injection therapies at ORM as well as musculoskeletal ultrasound training, and is working toward his RMSKUS certification. In addition to orthopedics, Dr Oltman specializes in TBI evaluation and treatment, offering unique regenerative medicine-based modalities for concussion recovery.

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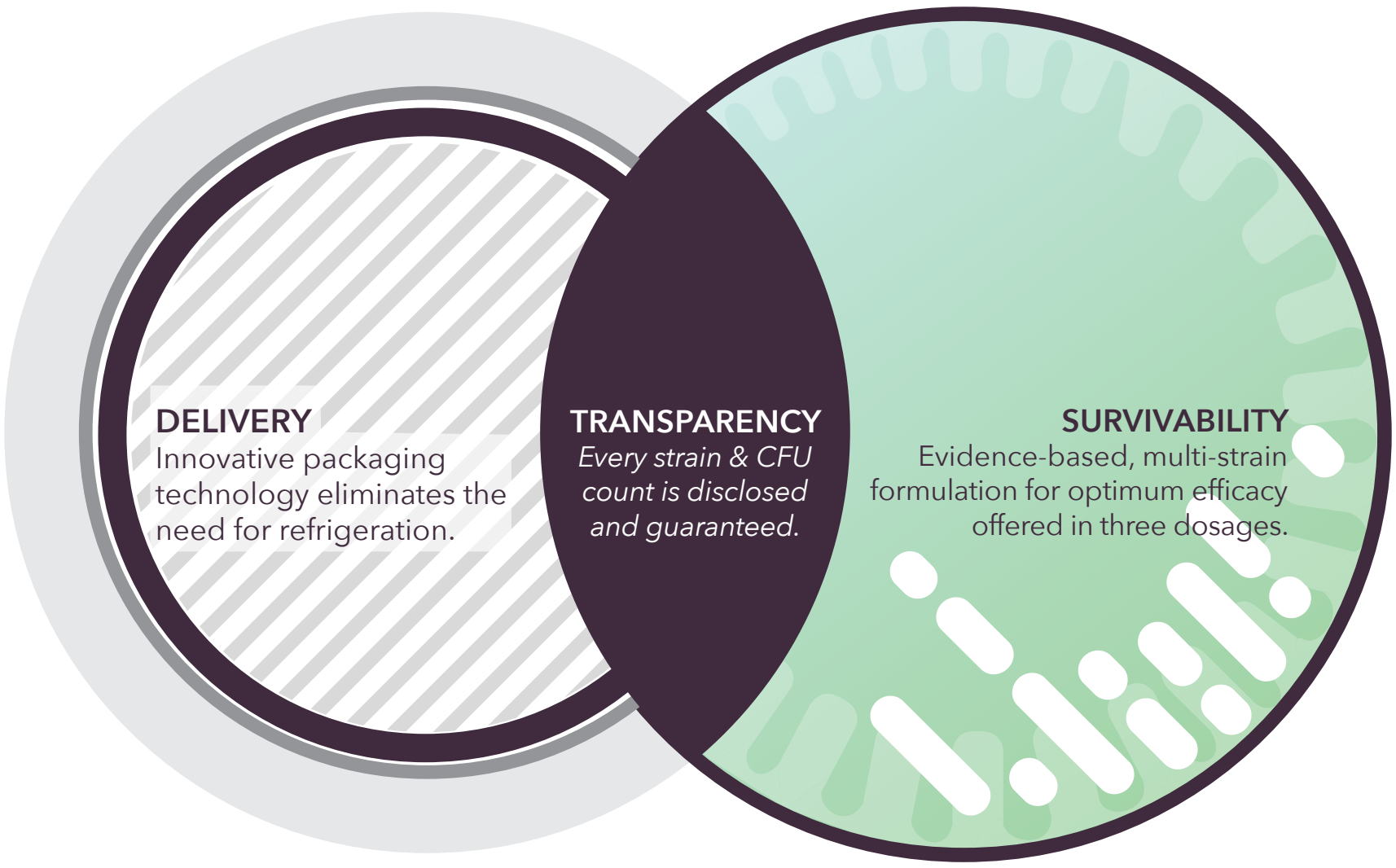

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Regulation & Quality Control

Challenges in the Dietary Supplement Industry

MICHAEL TRAUB, ND, DHANP, FABNO

Despite the US Food and Drug Administration (FDA)'s June 2007 publication of Good Manufacturing Practices (GMPs) for dietary supplements[1] and an effective date of compliance with such guidelines in August 2010, there continues to be a huge problem with quality control and quality assurance issues in the natural product industry. This is due to the FDA's inability to enforce these regulations, as well as to manufacturers either not following GMPs or making half-baked claims that they do.

Requiring manufacturers, not the FDA, to define quality specifications for their products and to guarantee that the finished products meet those specifications will not assure adequate improvement in the quality of dietary supplements in this country. In this "honor system," some companies will continue to make a good faith attempt. Many others will continue to do a pitiful job. There are an estimated 1500 natural product manufacturers in the United States, constituting a $54.41 billion industry in 2016.[2] The majority of them do very little or no quality assurance testing, making a "certified GMP" logo on a product label essentially meaningless.

Putting the Industry on Display

As clinicians, we have an ethical responsibility to be certain that the products we prescribe to our patients contain exactly what is stated on the label and nothing else. In this environment of economic adulteration, contamination, and counterfeit ingredients, we cannot afford to accept claims of quality – or blindly trust quality "certifications" – without careful scrutiny of the actual quality practices that apply to the specific product. The FDA has left us to do this vital work ourselves.

I have had the privilege of visiting most of the natural product manufacturing facilities that provide the products I recommend to my patients. I have met their laboratory and scientific teams, inspected their raw materials, equipment, and Standard Operating Procedures, discussed their product development, and evaluated their end-product quality assurance procedures. Recommending high-quality natural products is as important to me as the evidence basis for their safety and efficacy.

Fortunately, we also have some help from the trade organizations. On April 24, 2017, the Council for Responsible Nutrition (CRN) – the leading trade association in the industry – launched an online product registry called "Supplement OWL" (Online Wellness Library). Individual companies and their trade associations in the industry are working together to create the registry that will help increase transparency and accountability in the marketplace. The registry allows viewers to search, sort, examine, and evaluate labels and other product information to make better, informed choices. As CRN says, "If daylight is indeed 'the best disinfectant,' then the Supplement OWL helps to clean up the industry by putting it on display." (See: www.SupplementOWL.org)

AHPA's Contribution

On February 5, 2018, the American Herbal Products Association (AHPA) submitted nearly 100 pages of comments to the FDA Center for Food Safety and Applied Nutrition (CFSAN), identifying numerous ways to improve regulations, guidance documents, and enforcement practices to protect public health more effectively and efficiently.[3] (See: https://tinyurl.com/yc7egt23)

AHPA's comments, which addressed a wide range of regulatory issues impacting food and supplement companies, were submitted in response to the FDA's September 8, 2017 request for help in identifying existing regulations and paperwork requirements that could be modified, repealed, or replaced, to achieve meaningful burden reductions while allowing the FDA to achieve its public health mission and fulfill statutory obligations. The FDA's September notice was in response to the Trump Administration's Executive Order 13771 ("Reducing Regulation and Controlling Regulatory Cost") and Executive Order 13777 ("Enforcing the Regulatory Reform Agenda").[4]

AHPA's recommendations seek to improve regulatory requirements in several areas, including:

- Regulations for conventional food and dietary supplement operations and farms
- Dietary supplement manufacturing requirements
- Labeling requirements for foods and dietary supplements
- Pesticide regulations
- New dietary ingredients (NDIs)

The comments also recommend several changes to help the industry better understand and comply with cGMP requirements, including requiring FDA facility inspectors to cite the underlying cGMP regulations when making observations listed in Form 483s issued to facilities after an inspection.

AHPA requested several changes designed to improve consumer information on dietary supplement product labels, including allowing companies to reference scientifically accurate information in published literature even when it discusses the diagnosis, treatment, cure, or prevention of a disease, so long as the supplement itself is not making drug claims. AHPA also encouraged the FDA to revise its policy of restricting implied disease claims, since it has stifled the ability of marketers to make true statements describing "the role of a nutrient or dietary ingredient intended to affect the structure or function in humans," characterizing "the documented mechanism by which a nutrient or dietary ingredient acts to maintain such structure or function," or describing "general well-being from consumption of a nutrient or dietary ingredient," as permitted by the Dietary Supplement, Health and Education Act (DSHEA).

AHPA also encouraged the FDA to work with the Environmental Protection Agency to revise pesticide regulations and enforcement in a manner that maintains protections for consumers and the environment while also reducing burdens on food companies that use specialty or minor crops such as herbs and spices.

AHPA recommended that the FDA immediately withdraw or significantly revise the current NDI guidance document because it is not consistent with the statute and is misleading to the regulated industry. AHPA also urged the FDA to discontinue its recent practice of redacting almost all the information in submitted NDI notifications, in order to provide real-world guidance for future submitters.

On May 3, 2018, the Natural Products Association (NPA) announced the FDA had decided to delay its Nutrition and Supplement Facts Labeling rule.[5] (See: https://tinyurl.com/ybdtkuby)

Closing Comments

These issues addressed by the CRN, NPA, AHPA, and other natural product organizations are only the tip of the iceberg of the complex world of dietary supplement regulation, quality control, and quality assurance, including botanical authentication, DNA barcoding, and adulteration. For further information, interested readers can take advantage of a 2-year series of articles written by Rick Liva, ND, Joe Pizzorno, ND, and Michael Levin in *Integrative Medicine: A Clinician's Journal*.[6] (See: https://tinyurl.com/ycxapoft)

I will be addressing this subject in more depth in a 2-hour workshop at the Integrative Dermatology Symposium on October 21, 2018 in Sacramento, CA. Joining me as co-presenter will be my son, James Traub, member of the Board of Trustees, American Herbal Products Association, and QA Director for Herbalife International.

I urge you to attend this first-ever integrative dermatology conference. (For information: https://integrativedermatologysymposium.com/)

References available online at ndnr.com

Michael Traub, ND, DHANP, FABNO, graduated from NCNM in 1981 and completed a residency there in Family Practice and Homeopathy. He was recognized for his many years of service in the AANP, including serving as President from 2001-2003, and being honored with the 2006 Physician of the Year Award. Dr Traub has been the medical director of Lokahi Health Center, in Kailua Kona, for the past 32 years, and is a fellow of the American Board of Naturopathic Oncology. He serves on advisory boards for Dermveda, Kamedis, Nutritional Fundamentals for Health, Gaia Herbs, and Nordic Naturals.

How to Safely Love the Sun

STACEY SHILLINGTON, ND

Our bodies are designed to thrive in the sun, and yet we are living in a sun-deprived society. In fact, over 40% of the US population is deficient in vitamin D, otherwise known as the "sunshine vitamin."[1] This number is disturbing considering that the sun influences so much of our health and happiness. The sun, however, also poses some real risks. Skin cancer rates are rising dramatically, prompting us to hide from the sun and slather on sunscreen. Yet, despite our best efforts, we are falling victim to ultraviolet (UV) radiation at an increasing rate. What are we doing wrong, and how can we remedy this situation?

Sun Benefits

First, let's explore the ways that the sun benefits the human body:

1. **Vitamin D3 production**[2]: UVB rays from the sun react with cholesterol in the skin to produce vitamin D3 sulfate, a water-soluble vitamin that travels freely throughout the body and interacts with practically every cell. A vitamin D3 deficiency can contribute to conditions such as cancer, heart disease, type 2 diabetes mellitus, hypertension, obesity, cognitive impairment, Parkinson's disease, multiple sclerosis, fractures and falls, influenza, age-related macular degeneration, poor immune function, and depression. And that's not even everything!
2. **Nitric oxide production**[3]: When the skin is exposed to UV rays, nitric oxide is released from dermal storage sites in the skin. Nitric oxide helps prevent hypertension and metabolic dysfunction, and promotes cardiovascular health.
3. **Increased ATP production**[4]: The sun literally recharges our batteries. Recent research has revealed that mitochondria can capture light and synthesize ATP when mixed with a light-capturing metabolite of chlorophyll. This means that if you eat your greens (which contain chlorophyll), you can produce energy from the sun.
4. **Serotonin production**[5]: The sun produces serotonin through the skin. Serotonin is our feel-good neurotransmitter; without it we are prone to conditions such as depression and seasonal affective disorder.
5. **Antimicrobial activity**[6]: Vitamin D3 sulfate moves freely in the bloodstream, providing a healthy barrier that keeps out harmful bacteria and other microorganisms, such as fungi. The sun is a powerful cleanser. History is rampant with examples of heliotherapy to fight infection and disease. An example is Dr Auguste Rollier and his colleagues, who in the late 1800s used the sun and fresh air to cure many conditions, most notably tuberculosis.[7]

Sun Risks

As much as the sun is the most life-giving force in our environment, its risks cannot be debated. How does the sun harm the body?

1. **Aging**: The sun ages the skin; research backs this up over and over again.[8] Fine lines, wrinkles, and hyperpigmentation are all a result of overindulging in the sun's rays.
2. **Actinic keratosis**: Along with age spots and moles, actinic keratoses are a direct result of UV radiation and may lead to squamous cell carcinoma.
3. **Basal and squamous cell carcinoma**: Sun is the main risk factor for both types of skin cancer. Non-melanoma skin cancers increased by 300% between 1994 and 2010.[9]
4. **Melanoma**: Although melanoma is a deadly form of skin cancer, its etiology is not as clear-cut as basal or squamous cell carcinoma. Research has shown that sunburns and intermittent sun exposure create more risk than heavy occupational exposure.[10] This means that the guy who gets burned at the beach once per year is at greater risk of melanoma than they guy who labors in the fields, under the sun, for decades. This may seem confusing and a bit paradoxical at first, but when you understand the role of melanin in the body, it actually makes sense. The role of melanin is explained below.

Other Factors at Play

How can the sun be so wonderful and yet so dangerous at the same time? Why is skin cancer increasing at such a rapid rate? Is the sun entirely to blame? The answer is no, there are other factors at play:

1. **The Standard American Diet (SAD)**: The SAD consists of lots of sugar, inflammatory fats, processed foods, trans fats, colorings and other additives, pesticides, and medications (such as antibiotics in beef). The bulk of the SAD is hardly fruits and vegetables, yet we need fresh fruits and vegetables to protect our skin from the sun. Research has shown that a whole-foods diet high in antioxidants prevents free radical-mediated DNA damage and tumor development[11,12] and that pigment-rich plants actually boost the body's ability to mitigate sun damage.[13]
2. **Chronic inflammation**: Inflammation is at the heart of most chronic conditions, whether it is osteoarthritis, atherosclerosis, IBD, acne, lupus, or other autoimmune conditions. Research shows that inflammation, which is present in varying degrees in everyone, plays a critical role in skin carcinogenesis.[14]
3. **Vitamin D deficiency**: I love a good paradox, and this is one of the best. Thousands of studies implicate vitamin D deficiency as a risk factor for cancer, and skin cancer is no exception. That's right: vitamin D deficiency is implicated in skin cancer.[15] This is because natural vitamin D3 sulfate "becomes oxidized upon exposure to the high frequency rays in sunlight, thus acting as antioxidants to take the heat, so to speak."[16] In other words, vitamin D protects the body from the harmful effects of the sun. Researchers are unclear as to whether or not supplemental vitamin D3, which is fat-soluble, is available in the skin to perform this function. Thus, appropriate sun exposure may be important in the prevention of skin cancer.
4. **Sunscreen**: This is a controversial subject at best, and although I do not think that long-term exposure to sunlight without protection is a good idea, it has to be done correctly. Here are some considerations:
   a. The sun's rays emit both UVB and UVA radiation. Many sunscreens only block UVB rays and thus allow UVA rays to enter the skin. UVA rays, when uncoupled from UVB rays, can deeply penetrate the skin and damage DNA, which can potentially contribute to skin cancer.
   b. The Environmental Working Group has cautioned against several ingredients that are commonly used in sunscreens, most notably oxybenzone.[17] Reports claim that oxybenzone is not carcinogenic until it is exposed to sunlight, which is worrying at best. Although there is much contention surrounding this issue, it is well established that oxybenzone is a major contributor to coral reef damage throughout the world.
   c. Research published in the Cochrane Review in 2016 did not find any evidence for the effectiveness of daily sunscreen use for preventing basal cell or squamous cell carcinoma.[18]
   d. A study published in the *British Journal of Dermatology* in 2018 deemed that sunscreen is not a useful prevention measure against melanoma in the United States.[19]

For optimal sunscreen protection, use a non-nano form of zinc oxide that blocks and deflects both UVA and UVB rays, and avoid sunscreens containing oxybenzone and retinyl palmitate or other vitamin A derivatives.

Guidelines for Safe Sunning

So, what is a person to do? How do we love the sun, and let the sun love us? Following are my guidelines to take back our power and let the sunshine in – safely:

1. Consume a diet consisting of 80% fruits and vegetables, to maximize the amount of antioxidants available to fight free radicals generated by UV radiation and to increase our internal SPF. Eat a rainbow of colors!
2. Reduce inflammation in the body. Research has shown that an unbalanced microbiome is one of the main contributors to chronic inflammation in the body.[20] Heal the gut. Include plenty of omega-3 fatty acids in the diet, and reduce omega-6 fats, which promote inflammation. Support the liver and detoxify the body.
3. Make real vitamin D (from the sun) responsibly. Start with a few minutes each day in the early spring, and gradually increase the time you spend in the sun each day. An app called D-Minder can help you calculate a safe amount of time to spend in the sun for making the appropriate amount of vitamin D. The best time is in the morning until solar noon. Under no circumstances should you allow your skin to burn. In addition to making vitamin D, this process will allow you to gradually produce melanin in your skin, otherwise known as a tan. Melanin production will protect you from the stronger UV rays during the summer months, as it absorbs and dissipates 99.9% of UV radiation.[21] This allows us to side-step the UV damage that can lead to skin cancer. This is why people that are chronically exposed to the sun are at a reduced risk of melanoma – their gradual accumulation of melanin protects them from UV radiation.
4. While producing your natural vitamin D and melanin, use botanical oils to mitigate UV damage. Coconut oil, jojoba oil, sea buckthorn oil, and red raspberry seed oil naturally protect the skin from radiation damage.
5. For prolonged exposure to the sun, use a natural zinc oxide sunscreen, or cover up. Organic, full-spectrum zinc oxide sunscreen blocks and reflects the UV radiation instead of absorbing the sun's rays. It is also a more environmentally responsible choice than other types of sunscreens.

References available online at ndnr.com

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Encopresis & Constipation

Case Report of a 9-Year-Old Boy

DANA SCHMIDT, ND

CJ, a 9-year-old boy, came to our clinic with his father and aunt. He was a healthy-looking child, and I was struck by his impeccable appearance. His hair was neatly parted and slicked to the side, his clothes were stylish and neat, and even his sneakers were clean. He was polite and calm, if slightly embarrassed by the reason for his appointment.

The problem, his guardians explained, was a nearly lifelong history of constipation and encopresis, or fecal incontinence, which began following his parents' divorce. For the past 4 years CJ had experienced several soiling episodes every day, always without any sensation of urge or leakage.

His pediatrician had offered only laxatives, which did not provide lasting help. Several times per year the constipation was severe enough that his mother took the boy to urgent care, where an enema and muscle relaxants were administered. The family had hoped he would outgrow the episodes, which were becoming increasingly distressing and disruptive to their family life.

Surprisingly Common

CJ's presentation and lack of intervention are surprisingly common. Although encopresis affects an estimated 4% of school-aged children, most pediatricians don't screen for it, and parents, like CJ's, may expect their child to outgrow their "accidents."[1,2] This is unfortunate, since most children respond quickly to basic naturopathic treatments and including questions about encopresis in pediatric visits could benefit a large number of children.

In the case of encopresis, the child's mental health should be considered. This is because fecal incontinence can arise from a trauma and also because continued soiling episodes are associated with poorer mental health.[2-4] Encopresis and chronic constipation both appear in sexually abused children at a much higher rate compared to the general population; thus, abuse should be considered.[5]

Encopresis, which occurs when softer stool leaks around harder, drier stool in the colon, is usually caused by chronic constipation, particularly in children who have been successfully toilet trained.[1] Chronic constipation is usually caused by unconscious stool withholding. The stool becomes hard, dry, and painful to pass, and as the colon stretches, the nerves become less sensitive to this stretch and the child ultimately loses awareness of urge.[3]

The progression from constipation to incontinence is not well understood, but many cases are triggered by an emotional event in the child's life, from a dietary change to the birth of a sibling.[3,5]

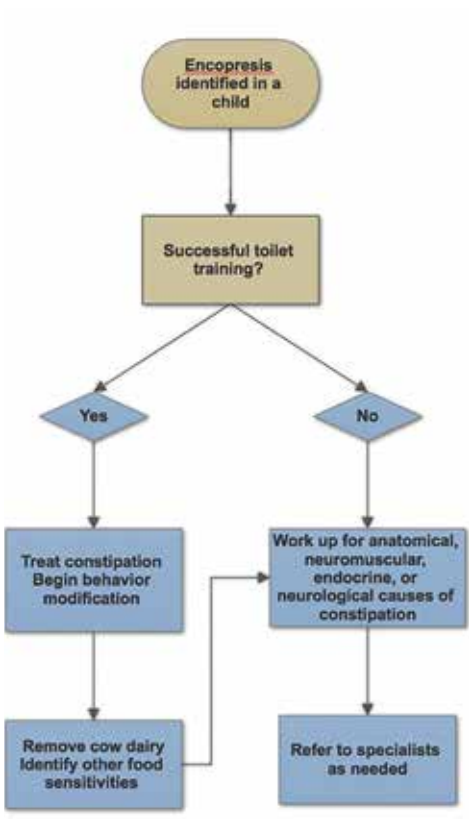
Successful treatment of encopresis must address the constipation that underlies most cases, and break the cycle of stool withholding.

Health History

CJ had a normal toilet training, but tended toward constipation with abdominal distention, even as an infant. He had a bowel movement every 3 to 4 days, and his stools tended to be large in size and quantity, hard, dry, and difficult and painful to pass. The constipation was accompanied by a painless distended abdomen, as well as urinary frequency without dysuria or history of urinary tract infections. Following a bowel movement, CJ was able to remain continent the rest of the day. These symptoms all pointed to chronic constipation as the cause of his encopresis.

Otherwise, CJ was a healthy child, in the 94th percentile for height and the 71st percentile for weight. He ate a fairly standard diet for an American child, with an emphasis on meat, cheese, fruit, bread, and pasta, and with limited sweets

Figure 1. **Approach to Encopresis**



and juice. He usually wasn't hungry for breakfast. His guardians felt he was well adjusted, and CJ said he had good friends and wasn't teased or bullied.

His health history was notable for 2 anaphylactic-like reactions to vaccines as an infant, as well as asthma that resolved by age 6. He had seasonal allergies, with noticeably swollen, pruritic eyes and rhinorrhea. He took children's loratadine, as needed, for allergies, and occasionally polyethylene glycol 3350, which he resisted due to fears of increased incontinence.

Basic physical exams were normal, with tenderness and palpable stool in the transverse and descending colon.

Treatment

Encopresis is poorly researched, but we do know that the most successful programs treat the constipation while also implementing specific toileting times in order to retrain the child's stretched colon.[4,6-8] Improvement is generally seen within 2 weeks, so a 2 to 3-week follow up visit to evaluate progress is appropriate.[6]

We began with the following treatments for CJ:

- **Behavioral change**: Upon waking, drink 12 oz water and sit on the toilet for 5 minutes
- **Daily probiotic supplement**: Probiotics for 4 weeks promote improvements in constipation and abdominal pain, as well as marked improvement in fecal incontinence.[9,10]
- **Homeopathic Natrum muriaticum 30C**, as a single dose in office: This remedy is indicated for children with seasonal allergies and dry, hard constipation with abdominal pain. Children who do well with Natrum muriaticum are usually well behaved, well groomed, and sensitive, both emotionally and physically. The remedy is also indicated for symptoms that began after a grief or loss, such as the divorce of this boy's parents.[11,12]
- **Effervescent magnesium citrate** at bedtime, 150 mg, increasing over time to 300 mg
- **Increased fresh produce and water**: Increased fruits, vegetables, and water are effective at preventing, but not necessarily treating, constipation, and also provide a food foundation for health. Low vegetable intake, higher milk intake, and dehydration are all associated with chronic constipation in children.[13,14]

Most children will respond to the combined constipation and behavior modification intervention within 2 weeks. For those who do not respond, consider food sensitivities. Cow's milk is a common trigger, but other foods may also be contributing to the constipation. Children with food sensitivities may have anal fissures, which contribute to the withholding cycle due to pain with defecation. These fissures resolve when the trigger food is removed.[15,16]

Other less common causes of chronic constipation in children include reactions to medication, or neurological, neuromuscular, endocrine, or anatomical disorders. These should be ruled out if treatment for functional constipation is unsuccessful.[1,15-17]

Two-week Follow-up

CJ and his family followed up 2 weeks later. He had been diligent with the probiotics and toileting times, but disliked the flavor of the magnesium citrate and discontinued it after 2 days. On the third morning after our initial visit, CJ had passed a large amount of stool. Since then, he had a daily bowel movement each morning, and most importantly, no soiling incidents. The family also noted a change in his behavior, toward being more active and outgoing; his aunt said he was "like a new child." The boy and his family were comfortable with the morning toileting routine and visibly happy with the change.

Fortunately, this is a typical, if rapid, response. Most children with encopresis improve quickly with naturopathic treatment, and families note a significant change within 2 weeks.[4,6,8] Increasing screening for encopresis, as well as intervening early, can help these children and their families avoid a significant amount of distress.

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In Defense of Essential Oils

Synergy, Nature's Wisdom, & Misleading Studies

SARAH LOBISCO, ND, IFMCP

For the love of science, can we stop the chit-chat about lavender, tea tree, and man boobs in little boys?!

The controversy over the "estrogenic properties" of certain essential oils resurfaced recently, sending essential oil lovers and the media into a familiar state of confusion.[1-5] The uproar stemmed from findings presented at the Endocrine Society's 100th annual meeting and released in March 2018.[4] In the study, the researchers assessed the hormonal effects of 8 constituents commonly found in lavender and tea tree essential oils on human cancer cells. Because the in-vivo results indicated changes in the cellular gene activities of estrogen and androgen receptors, they concluded that the synergistic, therapeutic essential oils might behave similarly in vivo. The media then deemed these essential oils to be endocrine disruptors that could cause young boys to develop gynecomastia.[4-5]

The methods of the experiment were highlighted in *Science Daily*[5]:

> *Under Korach's direction, Ramsey and his NIEHS colleagues went a step further. From the hundreds of chemicals that comprise lavender and tea tree oil, they selected for analysis eight components that are common and mandated for inclusion in the oils. Four of the tested chemicals appear in both oils: eucalyptol, 4-terpineol, dipentene/limonene and alpha-terpineol. The others were in either oil: linalyl acetate, linalool, alpha-terpinene and gamma-terpinene. Using in vitro, or test tube, experiments, the researchers applied these chemicals to human cancer cells to measure changes of estrogen receptor- and androgen receptor-target genes and transcriptional activity.*
>
> *All eight chemicals demonstrated varying estrogenic and/or anti-androgenic properties, with some showing high or little to no activity, the investigators reported. Ramsey said these changes were consistent with endogenous, or bodily, hormonal conditions that stimulate gynecomastia in prepubescent boys.*

This concern is not new. The *New England Journal of Medicine* published an article in 2007 that reported on 3 cases of prepubertal gynecomastia associated with lavender and tea tree essential oils.[6] The sex-steroid signaling disturbances were "verified" by an in-vitro analysis of human breast cancer (MCF-7) cells that express estrogen receptors, as well as human breast cancer (MDA-kb2) cells that express the androgen receptor.[6-8]

For several reasons, this 2007 study has been criticized for its conclusions. First, the cases in question were not connected to the use of the pure essential oils of lavender and tea tree; rather, all of them were linked to personal care products that contained these oils. These consumer goods are known to have ingredients that are deemed to be endocrine disruptors.[6,10,11] This biases the inference of sex-steroid alterations by the essential oils. The dosages used to produce the effects in a petri dish in the experiment were also likely not generalizable to actual human absorption of these oils in a commercial product.[7]

Another problem was that the essential oils within the products were not validated for therapeutic quality and sourcing. The lavender tested in vitro was likely attained from a synthetic source, according to the supplier listed in the article.[6,12,13] This disregards the synergy of pure essential oils – a concept that will be discussed in more detail later as it relates to the most recent study.

In the in-vitro experiment, the oils "were diluted in dimethylsulfoxide [DMSO] before they were added to culture media."[6] This is not in alignment with conserving essential oils' delicate constituents and their medicinal properties. (Please refer to my essential oils database[14] for articles about quality measurements of essential oils, as this is beyond the scope of this current discussion). DMSO also has been reported to alter outcomes in experiments via stimulation or inhibition of steroid signaling, depending on dosage used.[15] Furthermore, in a recent webinar with essential oil expert, Robert Tisserand, it was pointed out that the petri dish trays themselves contain plasticizers – known endocrine disruptors – that could be further broken down by the essential oils, released into the medium, and cause endocrine disruption that is mistakenly attributed to the essential oils or their constituents.[10,11,16]

Misleading Conclusions

The latest scare has just as many complications as in the past, including all the pitfalls of the petri dish extrapolations discussed above. As explained, one of the largest problems with in-vitro experiments is that the effects in a living system cannot be assumed to be the same as those observed in vitro, especially with essential oils.[17-20]

For example, in a 2008 study entitled "Evaluation of the Developmental Toxicity of Linalool in Rats," the authors stated, "It is concluded that linalool is not a developmental toxicant in rats at maternal doses of up to 1000 mg/kg/day."[17] This would not be consistent with the estrogenic activities of lavender suggested in the in-vitro experiment presented by the Endocrine Society.

A 2002 study compared estrogenic activity of various essential oil constituents in 2 types of cells (both in-vitro) and in ovariectomized mice (in-vivo). Effects varied widely, based not only on cell types assessed, but also on petri dish vs living creature.[18] The abstract states:

> *This study was undertaken to investigate the potential estrogenic activity of a number of essential oil constituents. Initially, estrogenic activity was determined by a sensitive and specific bioassay using recombinant yeast cells expressing the human estrogen receptor. At high concentrations, estrogenic activity was detected for citral (geranial and neral), geraniol, nerol and trans-anethole, while eugenol showed anti-estrogenic activity. Molecular graphics studies were undertaken to identify the possible mechanisms for the interaction of geranial, neral, geraniol, nerol and eugenol with the ligand-binding domain of the estrogen alpha-receptor, using the computer program HyperChem. Citral, geraniol, nerol and eugenol were also able to displace [(3) H]17beta-estradiol from isolated alpha- and beta-human estrogen receptors, but none of these compounds showed estrogenic or anti-estrogenic activity in the estrogen-responsive human cell line Ishikawa Var I at levels below their cytotoxic concentrations, and none showed activity in a yeast screen for androgenic and anti-androgenic activity. The potential in-vivo estrogenic effects of citral and geraniol were examined in ovariectomized mice, but neither compound showed any ability to stimulate the characteristic estrogenic responses of uterine hypertrophy or acute increase in uterine vascular permeability. These results show that very high concentrations of some commonly used essential oil constituents appear to have the potential to interact with estrogen receptors, although the biological significance of this is uncertain.*[18]

In humans, hormonal disruption by lavender essential oil has not been found. Robert Tisserand states that lavender was not found to be a uterine stimulant and has been used safely in childbirth[19]:

> *The research shows that lavender oil (L. angustifolia) is not a uterine stimulant. When used on the isolated rat uterus, it in fact reduced contractions (Lis Balchin and Hart 1999). And, lavender oil has no apparent adverse effects during childbirth. It was one of ten essential oils offered to 8,058 women in an 8-year study at the John Radcliffe Hospital in Oxford, UK. Aromatherapy did, however, reduce the need for pain medication. During the years of the study, the use of pethidine in the study center declined from 6% to 0.2% of women (Burns et al 2000).*[19]

The conclusions most recently reported were also not based on the actions of pure essential oils, but rather on the constituents found within them. Studies that separate 1 compound from a natural source and generalize its effects to the whole plant or substance are rampant and misleading in the supplement and natural health world. I discussed this concept in more detail and with references in an article I wrote for Saratoga.com.[21]

Ignoring the synergism of essential oils and disregarding the complexity and intricacies of their natural design is similar to isolating and mega-dosing a vitamin or mineral without considering its interacting and complementary components. This approach can cause imbalances or even harm to individuals; it is also short-sighted. As I discussed in an article published on the *Natural Path* website,[22]

> *As you can see, there is complexity to essential oils. Essential oils contain a wide array of constituents, regardless of how they are classified. These all have synergistic or differing therapeutic actions and mechanisms, which can support and balance out one's biochemistry. Furthermore, one constituent can have multiple actions. For example, alcohols can be antimicrobial, antiseptic, tonifying, balancing, spasmolytic, anesthetic, and anti-inflammatory.*[5]
>
> *Their chemical composition can also vary depending on the season*

of harvest and methods of extraction (distillation, hydrodistillation, super critical carbon dioxide extraction, and solvent extraction- the latter two are not technically essential oils). A final intricacy of an essential oil's action to consider is its chemotype or distinct plant population within the same species. These various populations produce differing plant secondary metabolites that have differing effects.[5,6,8,18]

There is also a difference, in terms of effects and processing, between synthetic isolates formed in labs and those found in nature – differences that potentially impact metabolism. I discussed this in a post on my website, in which I provide the example of wintergreen[23]:

Regarding the oil of wintergreen and toxicity, most toxic reports are based on its constituent, methyl salicylate. I have a chemist friend who explained to me the difference between synthetic methyl salicylate and that found in wintergreen oil. He said methyl salicylate manufactured in labs is from salicylic acid. Chemists will add sulfuric acid and methanol, both toxic compounds, to produce the methyl salicylate. This is a very different process than distilling wintergreen oil.

Plant "Estrogens" Wisdom

Natural constituents are also more likely to act as modulators, or balancers, compared to synthetic preparations. Phytoestrogens in plants are selective in their effects, based on the "estrogenic environment" in which they are placed. Research tends to isolate a single compound from a plant (rather than test the entire plant and its synergism) and then assume its effects to be identical in the human body and when using the whole plant. This may be why phytoestrogen studies have been conflicting and confusing. I explained this in a previous blog[24]:

The most widely accepted mechanism of phytoestrogens are their actions on estrogen receptors (ERs), with a higher preference for estrogen receptor beta (ER-B) than estrogen receptor alpha (ER-a). For this reason, phytoestrogens have mostly been classified as selective estrogen receptor modulators (SERMs), blocking excess activity if estrogen is too high and mimicking estrogen effects if estrogen is too low.[25,26]

However, phytoestrogens' activity isn't selective for these estrogen receptors alone, and there is evidence that other receptors related to estrogen response may also be at play.[25-28] *For example, it has been demonstrated that phytoestrogens can modulate aromatase activity*[26-30] *and increase production of sex hormone-binding globulin),*[25-30] *both affecting estrogen availability. This may be one reason why studies are so conflicting on benefits versus risks.*[25,26]

This means that the multi-mechanistic actions of these compounds will act differently than isolates that are only assessed for estrogen and androgen gene activity.

Phytoestrogens in plants are selective in their effects, based on the "estrogenic environment" in which they are placed.

Synergy & Innate Healing Power

A quality essential oil will contain a vast number of therapeutic constituents that the body can "pick and choose" from in order to rebalance its physiological processes. This is the concept of "synergy"[31] and is one of the most awe-inspiring characteristics of essential oils. I refer to it as their "innate" healing power. This aligns well with naturopathic principles.

Although an essential oil will possess general properties based on its biochemical makeup, factors such as genetic variance, microbiota diversity, and "internal environment" all influence its actions.

I explained this more in part II of my epigenetic series.[32] In it I highlighted a study that reported on metabolomic markers impacted by essential oils. The researchers discovered that the biochemical pathways of individuals were differentially affected by identical essential oils, resulting in balancing effects![33] In other words, essential oils seem to possess a "knowing" about how exactly they can balance the body in the way it needs.[34]

I will be following up with more blogs that explore the "hormonal effect" of essential oils. I am currently compiling studies and assessing the conclusions. Previous blogs and background on using essential oils to support healthy hormones can be found on my website[35] and include:

- Essential Oils for Stress & Hormones
- Healthy Hormones with Essential Oils – Balancing Effects of Emotions, Brains, and Relationships
- How Relationship Connections Can Be Enhanced with a Healthy Home Using Essential Oils: Combining Spring Cleaning with Spring Fever
- This One's for the Boys (and the Women and Partners That Love Them): Male Libido, Hormones, Fertility, and Essential Oils
- A Whiff of Healthy Relationships and Odorific Connections with Essential Oils – Love, Lindsey, and Lucy Libido

References 23-35 available online at ndnr.com

You can also find additional resources at: http://dr-lobisco.com/male-boobs-essential-oils-lavender-tea-tree-hormones-endocrine-disruption/

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Acute Cases in Pediatrics

DEBORAH FRANCES, RN, ND
CHRIS CHLEBOWSKI, DC, ND

Finding the right homeopathic remedy can seem daunting, but cases are often resolved by simple polycrest prescribing. Hopefully this series of articles will serve to inform and inspire the homeopath within us all. Fortunately, herbal medicine is more forgiving.

Post-Surgical Pain in an Infant

Dr Chlebowski

An infant seen in Dr Chlebowski's clinic a few days after birth for feeding problems was treated with craniosacral therapy and Network Chiropractic, which offered some relief but did not solve the problem. He was seen again 2 weeks later after receiving laser therapy to release his tongue, which the pediatrician had determined was the source of the problem.

Since the surgery, the infant had more difficulty feeding. He cried and kicked every time he tried to latch onto the breast, suggesting pain at the surgical site, and he had lost 9 ounces in the 3 days following surgery.

Examination was negative. Repertorization was completed using 2 rubrics:

MOUTH-INJURIES – Tongue; CALEN, aloe, arn, Carb an, merc

MOUTH-INJURIES – Tongue-laceration: CALEN

The infant was given 1 dose of Calendula 200C. The next day he was nursing better, latching normally, and no longer exhibiting distress with feeding. He rapidly began gaining weight and there were no further problems with feeding.

Calendula is in the same plant family as 2 other remedies commonly used in the treatment of wounds: Arnica montana and Bellis perennis.

A Case of Acute Balanitis

Dr Chlebowski

A 5-year-old boy was brought to the clinic with a purulent discharge of 3 months' duration, which was exuding from under the foreskin of his penis. Symptoms had started when an eruption seeping a yellowish exudate appeared under his nose. Five days later he developed a blister on the tip of his foreskin. The mother consulted 2 different physicians. Both made a diagnosis of impetigo and recommended antibiotics. The mother elected to not do this, instead using topical applications of grapefruit seed extract, acidophilus, and apple cider vinegar. The eruption on the boy's face cleared with the home remedies; however, the problem with his penis only worsened. She then consulted a urologist, who diagnosed the problem as scar tissue when she was unable to retract the foreskin. An appointment was scheduled for circumcision, which the mother hoped to avoid.

Pain and itching under the foreskin were intermittent and of varying intensity, but at times the child's discomfort was so bad he would cry and dance about, holding his penis in obvious pain.

Examination revealed an enlarged, erythematous glans penis under the foreskin. A milky-white discharge, accompanied by a few drops of bright red blood, exuded from under the foreskin. The shaft was red and irritated and the foreskin could not be retracted.

Despite his discomfort, the child was sweet and cooperative in the office and his mom described him as soft-spoken, easygoing, and affectionate – all personality characteristics suggestive of Pulsatilla. But repertorization brought up a smaller remedy, Jacaranda, the only remedy listed in the rubric:

MALE GENITALIA/SEX-INFLAMMATION – penis-glans pus; with- Prepuce; under: Jac-c

Both Boericke[1] and Clarke[2] write that Jacaranda is indicated with "heat and pain of the penis." Clarke adds that the "prepuce cannot be drawn back... [and there is] suppuration between glans and prepuce."

Roger Morrison, who generated the rubric, has only 1 sentence to describe Jacaranda in his materia medica[3]:

In cases of balanitis with pus under the foreskin, Jacaranda is nearly a specific.

How much closer to the Simillimum could we get? The child was given Jacaranda 30C, to be taken 3 times daily along with 2000 mg of vitamin C, as well as directions for penis soaks in silver hydrosol, to be done twice daily for 1 minute each time.

There was marked improvement within 24 hours, with an 80% decrease in swelling and discharge. The 30C was plussed and was repeated 3 days later when a slight suggestion of discharge and swelling returned.

On follow-up 10 days later, symptoms were completely gone, and the urinalysis, which previously showed high leukocytes, was completely clear.

Another Case of Impetigo

Dr Frances

An 8-year-old girl was brought to clinic with an eruption on the left side of her face, consistent with impetigo. Vesicles were present on a red, acrid base, and thin scabs were evident in areas where the girl had scratched. Scratching relieved the itching, but led to burning and a moist discharge. Heat aggravated the itching, and the whole business left the child weepy, irritable, and snappish – a definite change from her usually reserved nature.

The mother was instructed to make a paste by mixing cod liver oil with zinc oxide, to apply topically, and Sepia 30C was dispensed, to be taken every 4 hours.

On follow-up 24 hours later, the sensations of itching and burning were gone and the mom reported that the eruption was less red. The dosage of Sepia was reduced to 3 times daily, with a recommendation to decrease frequency of repetition as symptoms improved or to increase repetition if symptom improvement stalled or the eruption worsened. The condition continued to improve quickly over another 24 hours, at which time progress stalled and the eruption began to itch again. The potency of Sepia was increased to 200C every 8 hours as needed, again following

the symptoms. The impetigo resolved quickly after 2 doses of Sepia 200C, given 24 hours apart.

Sepia is a highly effective remedy for skin conditions when symptoms fit. It is one of several remedies for skin eruptions arising after exposure to poison oak. Bryonia (dry eruption) Sulphur, Rhus tox, Croton tiglium, Anacardium, and Apis are other remedies to consider for poison oak.

Although Sepia did not repertorize well, it is a complement to Natrum muriaticum,[4] a remedy that had helped this girl constitutionally.

A Case of Vaccinosis

Dr Frances

A 2-year-old girl was brought to clinic for non-rheumatoid pain and inflammation in her joints that rheumatologists were at a loss to tie to a definitive diagnosis. Usually bright eyed and vivacious, this little girl now spent most of her day whimpering and crying.

History revealed that the child had received several vaccines a few days before the onset of her symptoms. No other significant stressors were identified.

Since her symptoms were worse at rest and on first moving and were better with continued motion, a prescription of Rhus tox seemed like the obvious place to start. Pulsatilla has the same modalities, ie, "worse repose"[5] and "worse after having been seated a long time."[6] Both remedies are present in the rubric *VACCINATIONS, reactions ailments from*.[7] Since the child's basic nature was bold, curious, and mischievous, with rarely a trace of shyness, it did not occur to me to consider Pulsatilla, although the change in state may well have warranted its use.

The only treatment given was Rhus tox 200C, once daily for 3 days. The child recovered quickly, with no relapses, and the mother was advised to avoid further vaccines for this child.

Another child did not fare so well. It took a full year to restore this little boy's health after the administration of 9 vaccines at once left him with recurrent bronchitis and otitis media. This formerly healthy 3-year-old improved gradually with repeated doses of Sulphur. He was also kept on nutritional and herbal immune support, and was kept off offending foods that had not been an issue for him prior to vaccination.

Pertussis

Dr Frances

The violently spasmodic cough typical of pertussis can be exhausting for children and parents alike, especially since it is most often worse at night.

A simple formula of herbs (Table 1) has proven highly efficacious at mitigating symptoms and allowing everyone to get more sleep while the disease rests its course. Dosage should be adjusted for each child using Clarke's Rules (Table 2).

Table 1. **Herbal Formula for Pertussis**

Herb & Dosage	Action
Lobelia (5 mL)	Antispasmodic, low-dose herb
Verbascum (15 mL)	Antispasmodic, demulcent
Glycyrrhiza (10 mL)	Antispasmodic, demulcent, anti-inflammatory, antimicrobial, adaptogenic

Table 2. **Clarke's Rule**

Child's weight ÷ 150 × normal adult dose (30 drops for this formula)

The basic formula can be adapted to include other herbs, such as *Thymus*, *Prunus*, *Trifolium*, or *Grindelia*; however, the percentage of *Lobelia* in the formula should remain constant at 5 mL per ounce. The number of doses should be limited to no more than 10 in any 24-hour period. Excessive dosing of *Lobelia* will lead to nausea and vomiting.

Gruel made from *Althea officinalis* (Table 3) will provide moistening, demulcent, and anti-inflammatory properties, as well as mild antispasmodic actions. Frequent large doses of the gruel can be taken safely, and the herbs should be dosed freely for best results. The use of *Althea* is preferable to slippery elm, as it is more ecologically sustainable and works

just as well for protecting and healing mucous membranes.

Table 3. **Althea Gruel**

- Slowly stir ¼ cup of cold juice or water into 1 ½ to 2 tsp of powdered *Althea* root to make a paste
- Add 1 ½ to 2 cups of boiling water or juice, stirring steadily
- Cinnamon, raisins, honey, or other seasonings may be added for flavor
- Dose freely, up to 6 or more cups per day. This herb is quite safe.

The parents should be placed on a formula of adaptogens to support their own health during the worry and stress of dealing with child's illness. A tincture of adaptogens should be dosed at 30-60 drops 3 times daily.

Once the child has recovered, is it wise to keep them on a formula of lung-nourishing herbs (eg, *Althea*, *Verbascum*, and *Glycyrrhiza*) for several months to help rebuild the lungs and bronchi. An episode of pertussis can sometimes leave lung tissues vulnerable and more prone to pneumonia.

Pertussis is most dangerous to infants whose immune systems are too immature to respond to the vaccine. Most children recover fully from the disease.

A Case of Suppression

Dr Frances

A 3-month-old female, brought into the office for a loose cough and free-flowing, clear nasal discharge, was diagnosed with a viral upper respiratory infection and mild serous otitis media (OM). Pulsatilla 30C was dispensed, to be given every 4 hours based on the loose quality of the cough. Pulsatilla is the first remedy to consider for a loose cough at any age, especially if the cough is worse in the evening or accompanied by yellow discharge. Dry cough may also be helped by Pulsatilla when symptoms fit. The presence of conjunctivitis nearly always calls for Pulsatilla. A cough formula containing *Echinacea*, *Prunus*, *Verbascum*, *Inula*, *Hydrastis*, *Eriodictyon*, *Ligusticum*, and *Zingiber* was also dispensed, to be given at 5 drops every 2 hours for 48 hours while awake, then every 4 hours.

On phone follow-up 24 hours later, the mother reported that the baby was less fussy and sleeping better. The cough was less frequent and the coryza less copious.

A few days later, the mother called to say the child was worse, fussier than before. "Her nose is so plugged she can hardly nurse. I went up to a 200C Pulsatilla, but it's done nothing."

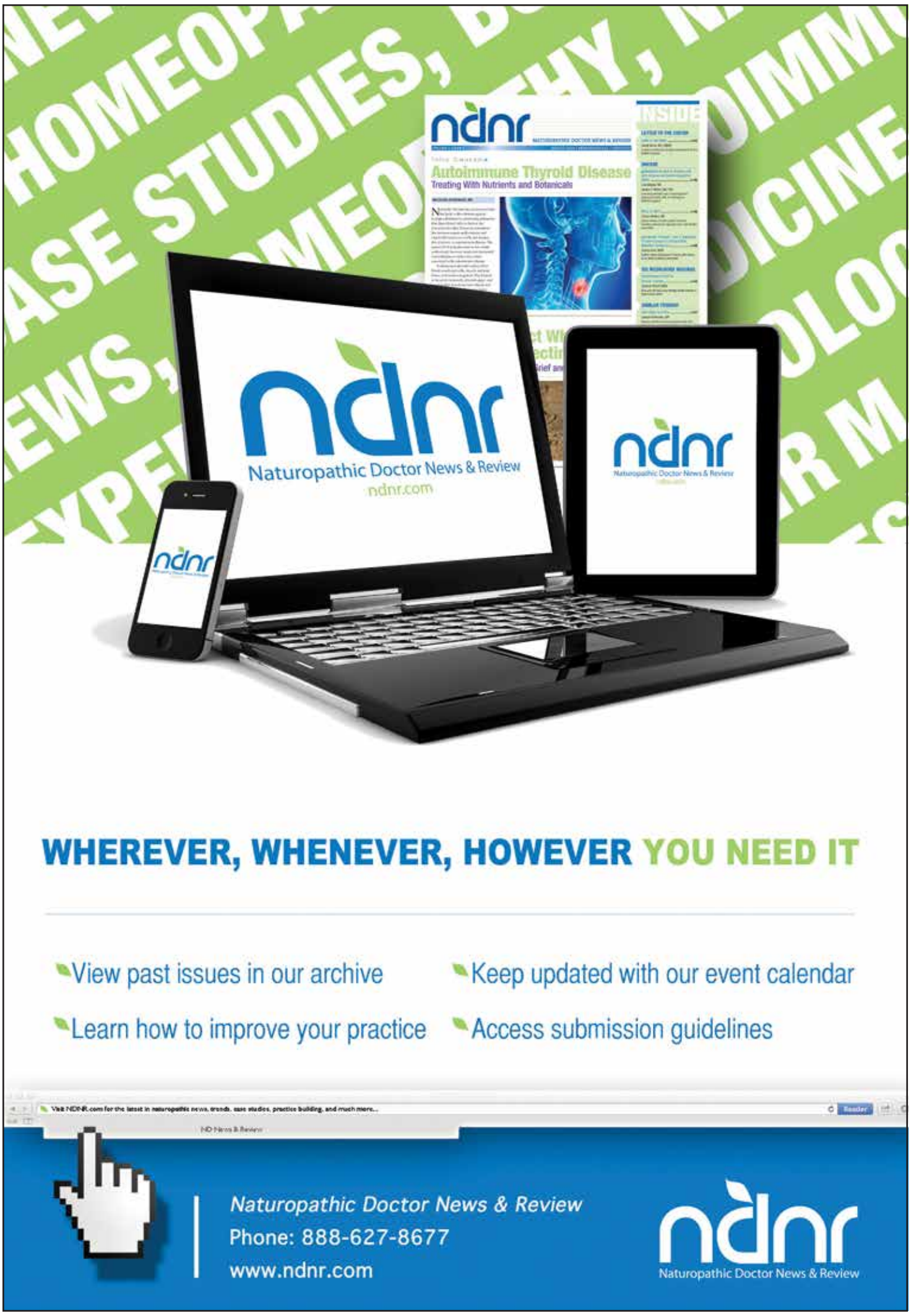
Examination revealed significantly more fluid behind the much redder tympanic membrane and no light reflex.

On the initial visit, both bronchial and nasal discharge were loose and flowing freely. The Pulsatilla had clearly been helping. It appeared that the worsening of her OM was related to the now-blocked nasal discharge.

Close questioning was unrevealing until the mother remembered that she had changed the cough formula to one she'd picked up at the health food store.

One of the ingredients in the new herbal cough formula was *Salvia officinalis*, a very drying herb. Full of hormone-modulating saponins, *Salvia* is a great herb for recalcitrant menopausal hot flashes with exhaustive sweating, but is contraindicated in any condition where a discharge is essential to the process of healing. I had the mom stop the new formula and repeat the Pulsatilla 200C. This time the remedy worked. On phone follow-up the next day, the mother reported that the mucus was again flowing freely from the nose, the baby was nursing normally and much happier.

This case illustrates the difference between using natural therapies and using them wisely. We are blessed as naturopathic physicians to have a philosophy that cautions us to avoid suppression by treating underlying causes (*Tolle Causam*) and honoring symptoms as the body's attempt to heal (*Vis Medicatix Naturae*). *Salvia* is an herb to watch for in OTC herbal cough formulas aimed at allopathically drying up the mucus in respiratory illnesses.



Deborah Frances, RN, ND, practiced homeopathy and nutrition as a registered nurse before graduating from NCNM (now NUNM) in 1993. She practiced in rural Oregon for several years before returning to Portland to teach at NCNM. Dr Frances has been a popular lecturer at conferences around the country and has taught as adjunct faculty at both NCNM and Bastyr. She has taught classes on herbal medicine, acute prescribing for NDs, dream work, and shamanic healing. She is strongly influenced by the traditional teachings of her Lakota ancestry. Dr Frances is the author of *Practical Wisdom in Natural Healing*, available at drdeborahfrances.wordpress.com.

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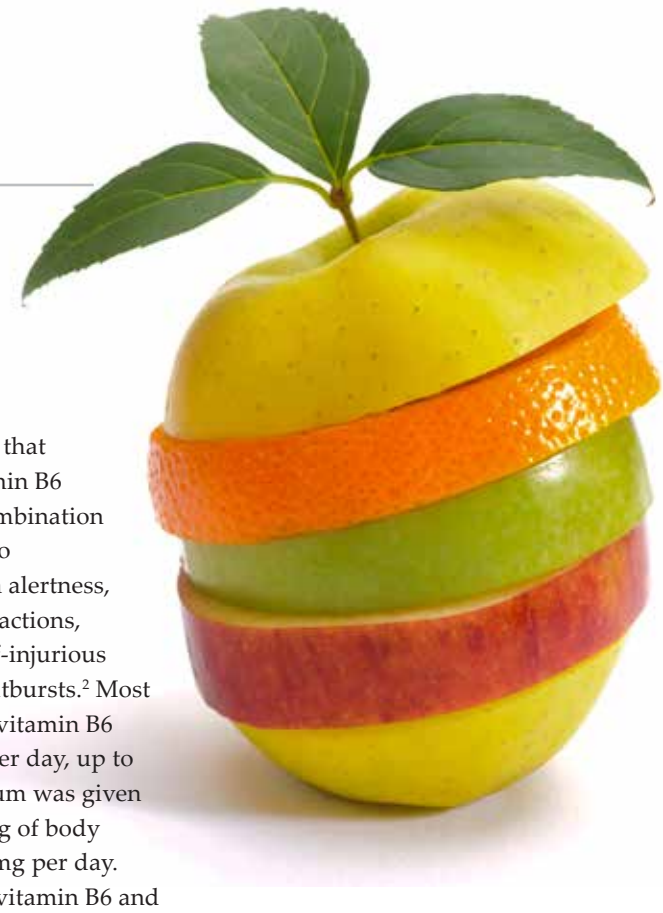
Treating Autism

A Nutritional Approach

DARIN INGELS, ND, FAAEM



Autism, or Autism Spectrum Disorder (ASD), is a developmental disorder manifesting in the first 2 years of life and affecting communication and behavior; it often manifests as long-term learning disabilities and/or emotional difficulties. Although ASD can be a lifelong disorder, treatments and services can improve a person's symptoms and ability to function. ASD usually affects the way children communicate, and is usually accompanied by physical comorbidities of immune, neuromotor, and digestive function. Most children with ASD have multiple food intolerances/sensitivities associated with compromised gut health.[1] This process has a significant inflammatory component that is exacerbated or triggered by an unbalanced gut microbiome and an inability of the body to tolerate specific kinds of foods.

GI Health & Food Sensitivities

Supporting gut health is critical for those with ASD. Because the enteric nervous system interacts with the community of bacteria that keep the immune system functioning properly, gut health plays a major role in both mental and physical well-being. Diet alone has clearly demonstrated a beneficial effect on gut flora and overall immune health, and is thus particularly important for these patients.

Many investigators have observed that food sensitivities are a contributing factor in ASD.[2] Avoidance of certain foods can improve behavior and overall health for those on the spectrum.[3,4,5] A general rule is to avoid, or at least minimize, the consumption of packaged products or processed foods. While this is not always possible, caregivers should make it a habit to read labels carefully and to be prepared to make phone calls to manufacturers to get specific questions answered about what is contained in each product consumed.

Research suggests that food allergies or sensitivities may play a key role in many cases of autism. While only a small percentage of children with autism have true life-threatening allergies, many others have delayed reactions to foods, involving different immune mechanisms. One reason that children with autism may be more susceptible to food reactions is increased intestinal permeability (aka leaky gut). One study found that up to 43% of children with autism had intestinal hyperpermeability.[6] Gut dysbiosis and inflammation are now thought to influence the neural basis of ASD via the microbiota-gut-brain axis.[7]

Perhaps the most popular dietary recommendation for children with autism is a gluten- and casein-free diet. A 2012 study of parents' observations of their children with autism revealed that such a diet led to significant improvement in autistic behaviors, including less stereotypy ("stimming"), better socialization, improved bowel habits, and increased expressive language skills.[4] A 2018 systematic review of the efficacy of a gluten- and casein free diet in ASD found that a certain subpopulation of children with autism experienced gains in language and social ability and had fewer adverse behaviors while following the diet, while other children with autism experienced no observable changes.[5] At the same time, there were no serious side effects from following a gluten- and casein-free diet. Despite some conflicting results in the research, there is good clinical evidence that some children with autism benefit from following a gluten- and casein-free diet; hence, it is worth trying. There has also been no evidence of nutritional deficiencies while following this diet, so children are not at risk of becoming nutritionally depleted.

Nutritional Support

In addition to dietary management, nutritional supplements, such as a basic multivitamin, may be beneficial to children with autism. One small study found that supplementing with a multivitamin for 3 months improved sleep difficulties and gastrointestinal problems, as compared with a placebo.[8] Many children with autism self-restrict themselves when eating and are consequently prone to nutritional deficiencies. Providing a multivitamin may help prevent this from occurring.

B Vitamins

Several studies have shown that supplementation with vitamin B6 (pyridoxine), alone or in combination with magnesium, can lead to significant improvements in alertness, communication, social interactions, and IQ, as well as fewer self-injurious behaviors and emotional outbursts.[2] Most studies used large doses of vitamin B6 (30 mg/kg of body weight per day, up to 1000 mg per day. Although it is unclear how vitamin B6 and magnesium work in children with autism, it is believed to modulate dopamine metabolism.[9] High doses of vitamin B6 can be toxic above 400 mg per day and cause "stocking-glove" paresthesias, where one experiences numbness from the elbow to the tips of the fingers, and from the knees down to the toes. As a result, high B6 dosing should be conducted under the guidance of a qualified healthcare practitioner. Anyone taking more than 200 mg of vitamin B6 should be monitored for signs of neurotoxicity. High doses of magnesium can cause loose stools, so the dose should be decreased if this occurs.

Some children with autism have been shown to have cerebral folate deficiency (CFD), where they make antibodies against the receptor that transports folate across the blood-brain barrier. Folate is necessary for normal growth and development. Children with CFD can suffer from irritability, delayed cranial growth, mental retardation, seizures, poor coordination, and autism. One of

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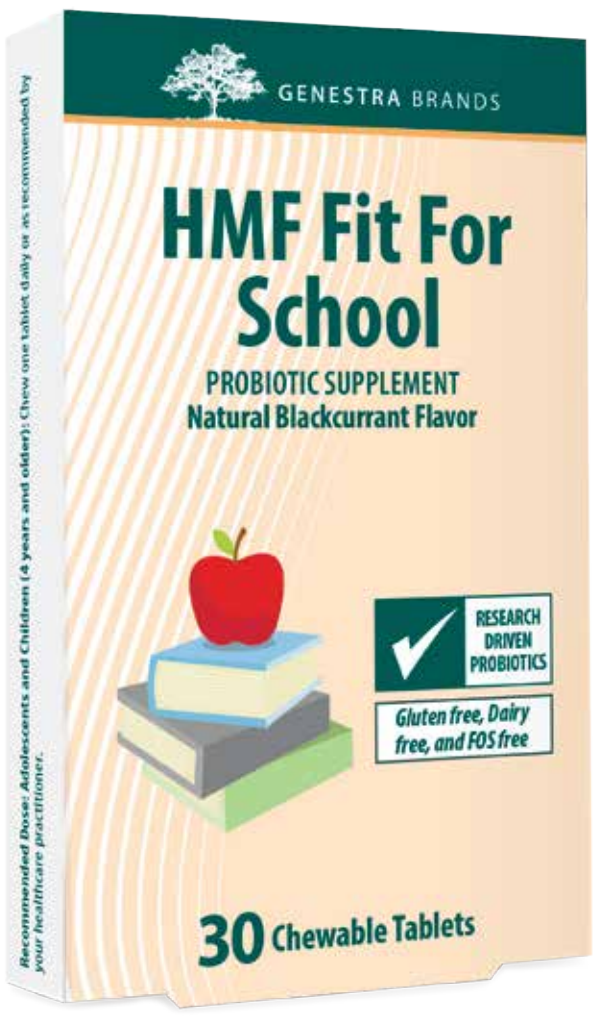

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Disruptions in the normal gut flora can lead to inflammation in the brain, potentially triggering or exacerbating autistic behaviors. Taking probiotics may be a way to help prevent brain inflammation.

the nutrients that can help bypass this problem is folinic acid, a metabolically active form of folic acid. In a 2018 study, children with autism and CFD were given 2 mg/kg body weight per day, up to 50 mg a day, of folinic acid for 12 weeks. Compared with subjects taking a placebo, the folinic acid group experienced significant improvements in verbal communication.[10] Folinic acid is well tolerated, even at high doses, and may help autistic children make gains in expressive language.

Gastrointestinal Health

Many children with autism have gastrointestinal comorbidities, including poor digestion. Inadequate breakdown of proteins, fats, and especially carbohydrates,[11] can lead to additional inflammation in the gut and increased gut permeability. Supplementing with digestive enzymes can help ensure that food is properly broken down to optimize absorption. In a study of 101 children with autism between the ages of 3 and 9 years, either digestive enzymes or placebo were administered with each meal. After 3 months of treatment, the children taking digestive enzymes had fewer gastrointestinal problems, better behavior, and fewer overall autistic traits, compared with those taking placebo.[12] In contrast, an earlier RCT found no clinical improvements in autism symptoms among ASD children taking digestive enzymes compared to placebo for 6 months, although there were possible beneficial effects on food variety.[13] Further research is therefore warranted to confirm the widely observed anecdotal evidence of improvement from digestive enzyme supplementation in autistic children. A high-quality digestive enzyme will contain a mix of enzymes to break down carbohydrates, proteins, and fats, and may include – in addition to amylases, proteases, and lipase – dipeptidyl peptidase IV (DPP-IV), to help break down gluten and casein.

Perhaps even more important is the now well-established connection between the gut and the brain. Disruptions in the normal gut flora can lead to inflammation in the brain, potentially triggering or exacerbating autistic behaviors. Evidence has demonstrated this mechanism, suggesting that taking probiotics may be a way to help prevent brain inflammation.[7] In an open-label study, 30 children with autism were given a probiotic containing *Lactobacillus acidophilus, L rhamnosus*, and *Bifidobacterium longum* for 3 months.[14] At the conclusion of the study, behavior scores (Autism Treatment Evaluation Checklist, or ATEC) and gastrointestinal symptoms had significantly improved.

Probiotics are safe and effective and may help alleviate neuropsychiatric symptoms associated with autism. Although further research is needed to determine which strains are optimal, many healthcare practitioners recommend giving at least 10 billion CFU of *Lactobacillus* and *Bifidobacterium* species, as these are commonly found in healthy children.

Essential Fatty Acids

Children with autism have lower concentrations of omega-3 fatty acids compared with neurotypical children.[15] Many of the studies examining omega-3 fatty acid supplementation have not shown any benefit in terms of communication, irritability, or hyperactivity. However, these studies included few participants, used suboptimal doses, and only lasted a matter of weeks. According to other studies of omega-3 fatty acids, much higher doses are typically used, and for longer periods of time, to achieve full benefits. Since many children consume insufficient dietary omega-3 fatty acids – such as from cold-water fish, nuts, and seeds – a fish oil supplement is a good idea and has no known serious side effects.

Mitochondrial Health

Impaired mitochondrial function is a common defect seen in ASD.[16] Mitochondria produce the energy necessary for normal growth and development in children, and regulate energy metabolism in both children and adults. Several nutrients have been shown to support mitochondrial function, including coenzyme Q10 (CoQ10) and L-carnitine. In a year-long randomized, controlled clinical trial of subjects with autism, supplementing with CoQ10 and/or L-carnitine led to improved cognition and speech and better energy.[17] L-carnitine may be given in doses up to 50 mg/kg body weight per day,[18] and CoQ10 may be given in doses up to 100 mg per day.[19] This "mito-cocktail" may be enhanced with vitamin B6 and magnesium, as they are both also involved in mitochondrial function and energy production.

Summary

Autism is a complex neuropsychiatric illness that is often accompanied by complex physical comorbidities. Goals of nutritional intervention include correcting underlying nutritional deficiencies and improving metabolic function. Given the safety of these nutritional therapies, they are reasonable to try in children with ASD, even when definitive clinical research evidence of efficacy is lacking. Preliminary evidence and mechanism-of-action studies indicate that these nutrients may improve cognition, language, motor function, and behavior.

Many parents report seeing positive changes in their children on a nutritional program, often even after just a few weeks. Particularly when using higher doses of nutrients, naturopathic or functional medicine guidance is recommended, in order to design an optimal regimen and monitor progress of the individual child.

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Darin Ingels, ND, FAAEM, is a respected leader in natural medicine, with more than 26 years of experience in the healthcare field. He is board-certified in Integrated Pediatrics and is a Fellow of the American Academy of Environmental Medicine. Dr Ingels has been published extensively and is the author of *The Lyme Solution: A 5-Part Plan to Fight the Inflammatory Autoimmune Response and Beat Lyme Disease* – a comprehensive natural approach to treating the disorder. He specializes in Lyme disease, autism, and chronic immune dysfunction. He uses diet, nutrients, herbs, homeopathy, and immunotherapy to help his patients achieve better health.

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Symptoms of Pregnancy

SUSSANNA CZERANKO, ND, BBE

Exercise should be strongly insisted; none of the means of preserving the health of pregnant women is more valuable than this.
Hester Pendleton, 1851, p.177

Many delicate ladies have said to me that they would die before they would submit to examinations needful to their cure by a male physician.
Mary S. Gove Nichols, 1851, p.17

I will merely add, and with deference that I have in this city [New York City], as many know, practiced the water treatment in a very considerable number of cases of midwifery, and I affirm, that no case can be found in which we have had any serious difficulty, or in which we have not had most remarkable success.
Joel Shew, 1856, p.165

Hydrotherapy establishments flourished in America in the early 19th century. They offered safe options for those unable to afford expensive and sometimes dangerous medical treatments, which all too often defaulted to drugs and surgical interventions. The proliferation of "water cure" facilities aligned with the growth in Vincent Priessnitz's influence upon North American doctors who had journeyed in large numbers to Gräefenberg to study his water healing methods. Returning home, these inspired (and transformed) doctors quickly set about establishing many new water healing centers. Not only did they use the water therapies they learned about under the tutorship of Priessnitz, these men and women also wrote about their cases and began to document their observations and experiences.

Reading their literature, we quickly discover their deep understanding of hydrotherapy. Their contributions are priceless, although, sadly, they have disappeared with so many of the books of that era. Even so, there are pearls to be rediscovered, such as one collection, a 7-volume series called *Water-Cure Library*, published in the mid-19th century. It featured several *hydropathic* physicians, both men and women, who left behind accounts of their efforts to heal patients without resorting to the standard of care in their day, such as mercury, bloodletting, and toxic cocktails of drugs. Their case reports are stunning, even miraculous, in their heroic achievements with the simple use of healthy dietary recommendations, physical exercise, and hydrotherapy.

Fifty years before the advent and rapid waxing of the new naturopathic healing paradigm and lexicon (which re-embraced hydrotherapy), there had actually been an earlier, first wave of hydrotherapy in America. It occurred in the early part of the 19th century, although water cure itself waned a few decades later. Even so, it was a golden era of hydrotherapy. In 1900, the first spark of Naturopathy surfaced, albeit long after the passing of many of these heroic water physicians. The more I read about Vincent Priessnitz and the men and women who followed in his footsteps, the more resolved I become to keep exploring these lost therapeutic treasures which lie buried in the mid-19th century hydrotherapy literature. That literature is rich with clinical pearls, as well as valuable didactic and theoretical information and data. In so many areas of serious health concern, hydrotherapy was hugely effective.

The early part of the 19th century was a golden era of hydrotherapy.

Complications of Pregnancy

Let us revisit childbirth and pregnancy-related issues, as a case in point in that effectiveness. Pregnancy in the mid-19th century was fraught with many complications that are not unfamiliar to women today. Over these last 170 years, many childbirth issues have persisted; in fact, our ability to deal with unnecessary symptoms during pregnancy – without the radical medicalizing of birth or heroic drug intervention – seems challenged even today. In this regard, last month we looked at how cold-water hydrotherapies came to the aid of women when they were giving birth. Let's examine the options available for women when faced with unexpected complications arising during pregnancy and delivery. We will review common conditions experienced by these women, such as morning sickness, constipation and hemorrhoids, insomnia, and puerperal fever.

Morning Sickness

In the 19th century, women who suffered from nausea and vomiting were also those female patients most likely to be physically inactive, who drank tea and coffee, and who subsisted on refined foods – habits which naturopathic doctors knew caused indigestion and led to constipation. These confounding factors sadly continue as contemporary catalysts for morning sickness, except that we can now add to this list environmental toxic burden, EMF, junk food and several thousand food additives, and a devastating sedentary lifestyle.

Dr Joel Shew was writing about such issues as far back as 1851. He writes that he found that women "who have good constitutions, and [who] live consistently, [that is] practicing daily bathing and water drinking [were] troubled but very little with these symptoms." (Shew, 1851, vol. 7, p.70) His dietary advice consisted of eating smaller quantities, chewing well, and eschewing all stimulating drinks, such as coffee and tea. If vomiting did occur, he noted, drinking large quantities of lukewarm water helped to thoroughly clean the stomach. Shew adds, "People often err in these cases of excessive vomiting, by taking too much food at a time." (Shew, 1851, vol. 7, p.72) A case of vomiting is presented later in this article with a comprehensive treatment plan that is very applicable for women today.

Constipation

Shew's observations about the causes of constipation are familiar to us over a century and a half later. He writes, "American people have such a predilection for fine food, it is hard matter to make any great change in this respect." (Shew, 1851, vol. 7, p.76) Shew blamed "super fine flour … as the greatest of all causes of constipation." (Shew, 1851, vol. 7, p.76) Tea and coffee and their astringent properties were also contributing factors, not to mention sedentary lifestyles. One concludes that our lifestyle habits have changed little in those 170 years.

Mary Nichols, another healer of that era, notes that too much haste in eating was the culprit. She writes, "The great trouble with Americans, is, they are in too great a hurry. They are in a hurry to eat and drink and to get rich. They get sick as fast as they can, and they want a short cut to health." (Nichols, 1851, p.12)

Constipation, in any case, was responsible for many of the other symptoms associated with pregnancy, such as nausea, vomiting, headaches, heartburn, heart palpitations, fainting, and insomnia. (Shew, 1851, vol. 7, p.76) If constipation was not solely responsible for causing other symptoms, it certainly aggravated these symptoms.

The cure for constipation, in general, was the same cure for pregnant women suffering from the same issue. Eating a diet of "brown bread, fruits and vegetables, with a very moderate use of milk; regular exercise, the hip bath, wet girdle, [enemas] of cold water, or tepid if preferred, are the means to be used." (Shew, 1851, vol. 7, p.77)

Piles & Hemorrhoids

Piles, another consequence of constipation, could also be aggravated by insufficient physical exercise or by the opposite extreme of excessive standing or too much exercise. Shew writes, "Piles and hemorrhoids are more apt to occur in pregnancy than at other times; and when these already existed, they are apt to become worse at this period." (Shew, 1851, vol. 7, p.78) Pressure of the womb upon the pelvic blood vessels caused a sluggish circulation, which was a precursor to piles. Inflammation of the tissues in the anal canal could be very painful. Other symptoms noted by Shew included: "feverishness, and very unpleasant feeling in the head, with deep and severe pain in the back." (Shew, 1851, vol. 7, p.79)

Treatment of piles was easy. Shew explains enthusiastically, "There is nothing in the world that will produce so great relief in piles as fasting." (Shew, 1851, vol. 7, p.79) Fasting on pure, cold water for 1 or 2 days was what it took. This fasting protocol also included a small amount of vegetables. Water applications were also great agents offering relief. The half-bath for 5 to 10 minutes, taken 2 or 3 times a day, was recommended for mild cases of piles. A half-bath was taken in a regular bathtub, with the water level reaching the umbilicus. The temperature of the water would be cold. Other hydrotherapies used included cold compresses worn upon the area affected; frequent cold sitz baths or washing the piles in cold water also offered immense relief.

The sitz bath was so much loved by Vincent Priessnitz that nearly every patient would have this bath as part of his or her regime. For pregnancy, Dr Hester Pendleton, a woman physician, explained that the sitz bath "has the effect of strengthening the nerves, of drawing the blood and humors from the head, chest, and abdomen, and of relieving pain and flatulence." (Pendleton, 1851, p.194) She adds that to ensure the best results, the woman's body that was not exposed to the water should be well covered with dry blankets during the sitz bath. Pendleton would then use from 1 to 6 inches of water in the sitz tub, and women would sit in the tub from a few minutes to 2 hours at a time. (Pendleton, 1851, p.194) In this regard, Mary Nichols recommended sitz baths lasting 15 minutes to stimulate and tonify the nerves of the bowels or pelvic organs; for the purpose of moving blood from areas of congestion in the head or chest, she recommended prolonged sitz baths of 30 minutes or longer. (Nichols, 1851, p.15) While in the sitz tub, a woman would rub her abdomen with water. The friction aided blood circulation and also helped to occupy the patient with a task that would take her mind off the coldness of the sitz bath itself.

Insomnia & Exercise

"Nothing is so likely to overcome the persistent insomnia, with which some women are troubled towards the close of pregnancy, as to exercise in the open air, carried to fatigue; this with a warm bath, will do more than all the anodynes you can give." (Pendleton, 1851, p.177) Women were encouraged to walk, and this indeed they did. Walks of several miles each day would be the prescription for the management of a healthy pregnancy. Pendleton recommended walking in "open air, and carried so far as to produce fatigue, but not absolute exhaustion." (Pendleton, 1851, p.177)

Puerperal Fever

The Water Cure House in Lebanon Springs, NY, established in 1845, soon became a mecca for those in dire need of medical help. Lebanon Springs had been renowned for its healing waters, and water temperatures ranging from 46° to 72°F/8° to 22°C allowed for a wide range of therapeutic applications. This location was chosen by Dr Joel Shew and others as a suitable site for a water-cure establishment on a large scale. Shew stayed for the launch of the Hydrotherapy clinic before returning to his clinic in New York City. Dr Bedortha replaced Dr Shew in the fall of 1856, and found that 80% of the patients coming to Water Cure House were chronic cases – severe and often with obstinate symptoms and presentation.

For example, a case of puerperal fever with neuralgia presented at Lebanon Springs. The patient lived 2 miles from the Water Cure House. She was described

as weak and had suffered poor health since childhood. "She was the mother of two children. Soon after the birth of her first child, she [experienced] severe back pain and limbs. Her physician prescribed black cohosh." (Bedortha, 1856, p.57) The pains eventually improved, but she then developed edema of the limbs and feet, which did not resolve until after the birth of her second child and water applications. After the birth of her second child, the mother suffered with severe neuralgia and fever. Dr Bedortha was summoned by the husband of the pregnant woman and he referred the woman to her former physician, who again resorted to black cohosh. The husband made a second attempt for Dr Bedortha to see his wife, and this time he consented. He found the patient with a fever, severe pelvic pain, mental agitation, and edema of the extremities.

Bedortha prescribed a sitz "hip bath with water temperatures of 70° F/21° C, at the same time rubbing the spine and the affected parts thoroughly while in the water." (Bedortha, 1856, p.57) The pains immediately left after the first hip bath, but the baths were repeated every 3 to 6 hours for the next several days. Another water application involved the continuous use of the wet abdominal bandages, a signature treatment employed by Vincent Priessnitz. Despite the patient feeling much better, her underlying feebleness prompted the doctor to instruct the patient to continue with a mild course of treatment for several weeks, which culminated in a healing reaction. "An eruptive crisis began to appear on the abdomen, which became very troublesome, discharging large quantities of offensive matter, with which the bandages were constantly stained." (Bedortha, 1856, p.57) Once the healing reaction occurred, though, the patient gradually recovered fully from her lingering edema.

A Case of Retching

Mary S. Gove Nichols practiced hydrotherapy at a time when women were highly reluctant to submit themselves to a medical examination by male doctors. A scholar writing in the mid-19th century, Nichols wrote brilliantly in the *Water-Cure Library,* as evidenced by her case of a woman retching during her second pregnancy. Case: Mrs D. of New York, during the seventh month of her first pregnancy, had an inguinal hernia. Nichols writes:

> *The family physician was consulted, and instead of using the proper means for reducing the hernia, he decided that it could not be done without first bringing on labor, which he proceeded to attempt by the administration of ergot! … The unnaturally excited efforts of the uterus to expel the fetus, did not produce the desired effect, but brought on the most frightful convulsions, and after three days of indescribable sufferings, the whole system sunk, and the action of the uterus entirely ceased, nor could the deadly ergot excite it to another effort. At this stage the fetus was extracted with instruments. (Nichols, 1851, p.65)*

Nichols was called to attend this woman who suffered "a thousand deaths" with the brutal death of her first child. Nichols found the patient, Mrs D., as frail and having succumbed to retching and vomiting so severe as to threaten a miscarriage. "She was treated with the half pack in the wet sheet, constant fomentations of wet linen to the stomach, sitz baths, and injections. In a week the sickness of the stomach was gone." (Nichols, 1851, p.66)

In the seventh month of Mrs D.'s second pregnancy, the intestines had descended, again threatening a miscarriage by another hernia. Being in intense pain, the woman was unable to sit or walk. Nichols applied pressure to the rupture of the hernia and then administered a wet bandage and wet compress to the area. The half pack was once more used. These simple water treatments allowed the woman to be comfortable and mobile. Without the conventional use of trusses or medication, this woman was not only relieved of her pain, but improved her health and strength to the point that she could deliver a healthy baby without suffering. "She was able to leave her room on the third day after delivery, and mother and child have got on as well as could be desired." (Nichols, 1851, p.67)

Conclusion

We can bow to the words of Mary Nichols, who so eloquently summarized the power of hydrotherapy. "The universal practice of water cure would lead to universal health. A single consultation and prescription are often all that is necessary; and, contrary to every other system of medicine, the means for gaining health are also the means of preserving it." (Nichols, 1851, p.12)

Next month we shall discover more about this remarkable woman, Mary Sargeant Gove Nichols (1810-1884), who championed women's health care almost 2 centuries ago and whose memory and accomplishments have lain buried in the literature from that earlier period.

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Here Comes the Sun

Nimbostratus Clouds & the Naturopathic Profession

DAVID J. SCHLEICH, PHD

In the past 2 years, matriculation has lagged in the naturopathic programs in North America. The discussions about what happened, why, and what to do have been robust and persistent. Five years ago, though, Moody's Investors Services published an outlook document about the entire US Higher Education sector, which produced more than a few nimbostratus clouds that have lingered for months and months. (Martin, 2013) Many of us gulped.

Moody's Cloudy Forecast

Six factors stacked up under that steady and widespread forecast, some of which have persisted. (Wilson et al, 2014) However, some eventually shifted. For example, items 5 and 6, below, changed in the ensuing few years and, hark, the sun broke through! That feels better. So far.

1. Diminished prospects for revenue growth
2. Approaching ceilings on tuition growth
3. The critical challenge of student loan burden
4. The specter of sustained volatile investment returns, just when modest endowment funds started going in the right direction
5. A downturn in philanthropic gifts because of the economic retrenchment following 2008
6. Clear signals from Washington that accountability for tuition revenue and financial aid had to manifest in gainful employment, or else

Some of that gathering sun is about philanthropy. With regard to bullet 5, for example, 2017 turned out to be a pretty solid year in America for giving to America's colleges. Philanthropy rose 6%, with the gifts mainly coming from alumni, but also from corporations and foundations. (Joslyn, 2018)

With regard to bullet 6, by late April of this year, no appeals that had been reviewed had been denied within what had begun as seriously contentious legislation during the Obama years. In fact, the Trump administration's call for less government prescription and more laissez-faire is replacing gainful employment ratios with debt-to-earnings metrics.

Let's look a little more closely at bullet 6, half a decade later. The Gainful Employment Act may be the law of the land, but it seems to be in quasi-abeyance pending new proposed rules, including deletion of the term "gainful employment" and the Education Department's intention to eliminate the loss of eligibility to receive federal student aid. The Association of Private Sector Colleges and Universities (with which many of us are affiliated) was critical of this legislation, whose origins go back to 2009 when the alarm bells were going off about student debt load, defaults, and the ravages of a collapsing employment market. A 2012 lawsuit by the Association of Private Sector Colleges and Universities described the impending legislation as "arbitrary and capricious." In response, by 2014 the Department of Education tidied up its gainful employment rules.

> Brand is one thing. Entering the workforce after graduation is another.

What has survived are the original disclosure elements, mandatory reporting by colleges for certain programs, and a less daunting but equally challenging debt-to-income framework requirement. Betsy Mayotte (*U.S. News and World Report*, 2015) explained that these new rules pencil out only for non-degree programs and affect only students who actually graduate.

However, more than a few of our financial officers in the private post-secondary and higher-education fields (whether we are non-profit or proprietary) have the eventual rollout of this new legislation still on their radar. The debt-to-income rule is still worrying because, alongside our students, we are all concerned about income and earning(s) potential for our graduates. Millennials talk. To each other. Often. The word spreads. Brand is one thing. Entering the workforce after graduation is another.

The persisting worry is that a perfect storm of debt load, defaults, and uncertain employment opportunities is scaring undergraduates and graduates alike away from matriculating and instantly accruing loan debt. Even with the blurring of the Gainful Employment Act, many prescient, progressive post-graduate certificates are still getting set aside, pending a closer study of their respective value propositions.

Digital Indicators & International Students

There are other lingering clouds to consider as well, many of them not so ominous as they seemed a while back. Take digital education, for example. Emerging faster than back in 2014 are less nerve-wracking signals from our universe that new models of educational design and delivery have successfully moved from the on-ramp to the flow of traffic on the higher education freeway. Millennials and older, part-time adult learners like the convenience and the rigor. They like the price better. There are the rising costs of rigor and sustainability of online education to contend with as a demonstrably growing segment of programs in hundreds of colleges and universities. However, revenues are robust.

Alas, affecting the post-secondary and post-graduate terrains has been the slowing enrollment growth in international students. Even though the US share moved to 24% of the global market (as compared to 28% back in 2001), last year's international enrollment in US colleges and universities increased 3%. (Zong & Batalova, 2018.) At the same time, over 20.4 million students (an increase, in fact, of about 5.1 million since fall 2000) will matriculate into American colleges and universities. (National Center for Education Statistics, 2017)

The trend is slowly upwards again. Nice. At the same time, though, but not surprising to recruitment and admissions staff in our colleges, students and parents (most especially in the undergraduate tier) want more for less (translation: better services, amenities, and quality, for less tuition, or at least for a predictable half-decade of only moderate tuition increases).

Oh, and then there are worrying developments in federal tax regulations that could result in an expanded endowment tax (either in scope or percentage). Gulp. More clouds on the horizon? Well, maybe not.

Here Comes Some Sun

OK, so the post-secondary and higher-education sector still has some Eeyore clouds hanging around. However, some sun is breaking through here and there, indicative of things calming. We may be seeing in the next half of 2018 more such harbingers of sun breaking up those scary nimbostratus clouds of economic malaise. That feels better. So far.

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