

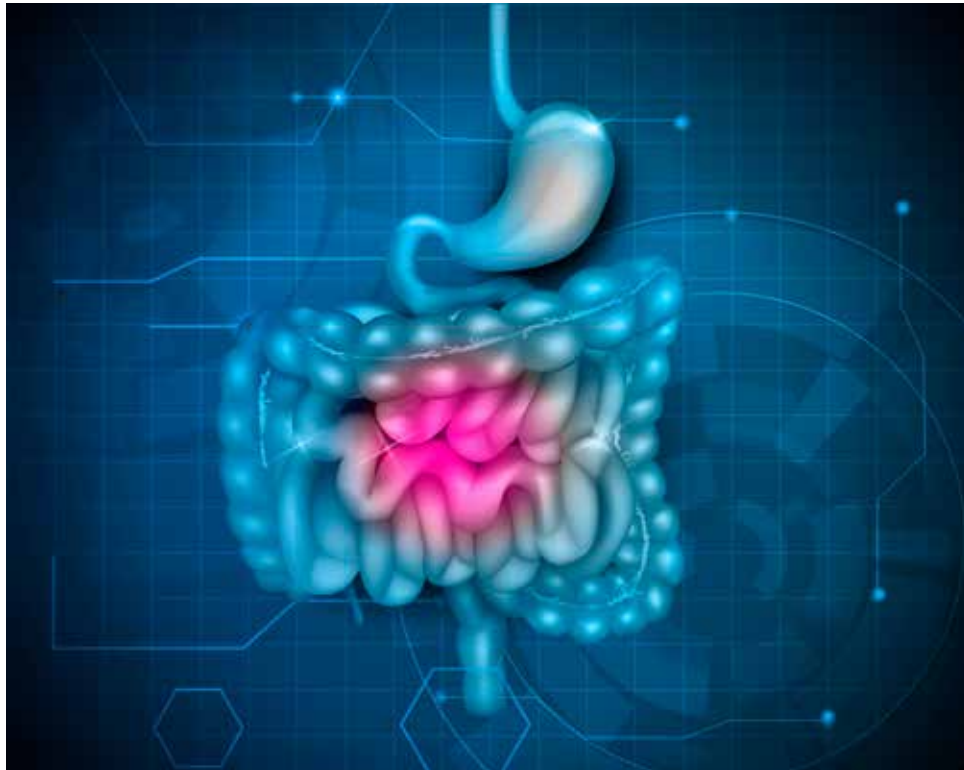
Student Scholarship - 1st Place Case Study

GI Dysfunction in Parkinson's A Naturopathic Approach

EMMA M. N. PETSHOW
CARRIE BALDWIN-SAYRE, ND

Parkinson's disease is a neurologic disorder that affects the substantia nigra of the brain by depleting dopamine-secreting neurons.¹ Gastrointestinal distress, including nausea, constipation, and anosmia, are common side effects and early signs of Parkinson's.² Side effects from Parkinson's disease medications such as carbidopa-levodopa can also lead to gastrointestinal distress.² Currently, treatment of gastrointestinal distress in Parkinson's disease is through pharmaceutical management to treat symptoms, as opposed to treating the underlying cause. The most commonly prescribed medications for treatment of constipation are stool-bulking agents such as polyethylene glycol and laxatives, which

Continued on page 3



Student Scholarship - Honorable Mention Case Study

Castor Oil & Age-Related Cataract A Case for the Therapeutic Order

MARY FU, BA, MA
JENNIFER BRUSEWITZ, ND

The Therapeutic Order describes the foundational philosophical principles of naturopathic medicine and serves as a guiding force in its modern practice (Figure 1).¹ The following case illustrates the use of topical castor oil, within the context of the Therapeutic Order, for age-related cataract in a 68-year-old male. This patient, like so many of our patients, came to us already engaged with ongoing higher-order interventions. His case is notable, however, in that he is dependent on them for organ function. In spite of this, he is determined to work within the foundational layers of the Therapeutic Order to improve his vision and overall health.

Figure 1. Therapeutic Order Pyramid



(Adapted from Zeff J, et al; 2006)¹

The Patient

Our patient is a 68-year-old quadriplegic male who first presented to our clinic seeking treatment for cataract of the right eye, a diagnosis that was made by his

ophthalmologist 5 years prior. He reported a notable decline in vision after a 7-month period of hospitalization following a surgical complication. Subsequently, he experienced progressive difficulty seeing computer screens and reading books, due to decreased visual acuity and increasing sensitivity to light. At the time of presentation, he had already been prescribed multiple pairs of glasses to correct his vision, without success.

His past medical history was significant for a number of cardiovascular and pulmonary events associated with paralysis. Without adequate blood- and lymphatic circulation to deliver nutrients and oxygen, the small vessels of the kidneys and eyes are the first to be impacted. Furthermore, he was being

Continued on page 8

INSIDE

STUDENT SCHOLARSHIP – 2ND PLACE

2nd Place Research Review – Gold Standard or Double Standard? Evidence-Based Healthcare in Medical Malpractice >>10

Sean Elizabeth Jackson, BA (Hons)
Jason Marr, BSc (Hons), ND

The theories behind EBHC can be flawed, biased, and, most importantly, can change.

TOLLE CAUSAM

Adult Onset Acne: A Case Study & Clinical Perspective >>12

Briana Cain, NMD

A successful acne case illustrates the importance of identifying underlying causes.

NATUROPATHIC PERSPECTIVE

Red Light Therapy: How It Benefits Your Anti-Aging Regimen >>16

Jannine Krause, ND, EAMP

Red light and infrared therapy can help with both skin rejuvenation and tissue healing.

Melanoma & Aspirin >>23

Jacob Schor, ND, FABNO

How to react to a study that might support our patients but not necessarily the *Vis*?

STUDENT SCHOLARSHIP – HONORABLE MENTION

Honorable Mention Research Review – Physical Activity Monitors: A Clinical Tool for Motivating Knee OA Patients >>18

Ju Young Yoo, BSc

Adam Gratton, MSc, ND

First-line treatment for knee OA is exercise, but only 13% get enough. PA monitors can help.

NATURE CURE CLINICAL PEARLS

The Spanish Mantle >>24

Sussanna Czeranko, ND, BBE

The Spanish mantle was a way of applying a full-body wet sheet without needing an attendant.

EDUCATION

Signifiers Among Us: How Professions Take Shape >>26

David J. Schleich, PhD

Generating appropriate signifiers for the profession is especially critical these days.

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Friday July 13, 2018 (1:00-5:30 PM)

1:00-1:30 PM	Carolyn Ledowsky, ND	Why is methylation so important. What is it we do?
1:30-2:15 PM	Debby Hamilton, MD, MPH	Environmental Toxins and infections in Autism
2:15-2:30 PM	Panel: Carolyn Ledowsky, ND & Debby Hamilton, MD, MPH	Questions
	BREAK	
2:30-3:00 PM	Andrew Rostenberg, PhD	Genetic Roots of Stress and Anxiety. How the gut affects your mood.
3:00-3:45 PM		Gut Case Studies
3:45-4:15 PM	Andrew Rostenberg, PhD	Endocrine Disrupting hormones – Who's at risk?
4:15-5:00 PM	Nicole Bijlsma, ND, LAc	Questions
5:00-5:15 PM	Panel: N. Biljsma, ND, LAc	Close
5:15 PM	Carolyn Ledowsky, ND	

Saturday July 14, 2018

8:00-8:45 AM	Carolyn Ledowsky, ND	Genetic SNP's that affect susceptibility to environmental toxins
8:45-9:30 AM	Sara Wood, ND	Organophosphate and Endocrine Disrupters How to Test & Evaluate - Case Studies & Treatment
		Questions
9:30-9:45 AM	Sara Wood, ND & Carolyn Ledowsky, ND	Pathway planner & Case studies
9:45-10:45 AM	Carolyn Ledowsky, ND	
10:45-11:15 AM	MORNING BREAK	
11:15-12:30 PM	Matthew Pratt-Hyatt, PhD	Organic Acids Evaluation and methylation insights
12:30-12:45 PM	Matthew Pratt-Hyatt, PhD	Questions
12:45-1:45 PM	LUNCH	
1:45-2:30 PM	Andrew Rostenberg, DC	Organic Acids Case Studies (RECORDING)
2:30-3:15 PM	David Quig, PhD	What is Awry in Essential Methionine and Folate Metabolism
3:15-3:30 PM	David Quig, PhD	Questions
3:30-4:00 PM	AFTERNOON BREAK	
4:00-4:45 PM	Carrie Jones, ND, MPH	When Hormones, Organic Acids and Genetics Collide: How to put the puzzle pieces of testing together.
4:45- 5:00 PM	Carrie Jones, ND, MPH	Questions
5:00pm		Close

Sunday July 15, 2018

8:00-9:30 AM	Carolyn Ledowsky, ND & Nicole Bijlsma, ND, LAc	Other environmental factors – heavy metals, viruses, lyme, mold, vaccines, diet. Who's susceptible
9:30-9:45 AM	Questions: Carolyn Ledowsky, ND & Nicole Bijlsma, ND, LAc	
9:45-10:45 AM	Stephanie Seneff, PhD (VIA DIRECT LINK LIVE)	Glyphosate disruption of methylation
10:45-11:00 AM	Questions: Stephanie Seneff, PhD	
11:00 - 11:30 AM	MORNING BREAK	
11:30-12:15 PM	Carolyn Ledowsky, ND	GlyphosateGenetic SNP's and case studies
12:15- 1:00 PM	Carolyn Ledowsky, ND	Putting it all together for patient assessment– where to start?
1:00 PM		Close

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Continued from top of page 1

work to soften the stool, making it easier to pass.³ The symptoms of acid reflux are often treated with a proton-pump inhibitor (PPI) or H₂ blocker.³ Early identification of symptoms associated with Parkinson's disease, along with proper treatment, can improve quality of life for these patients.

Patient's Presenting Concerns

A 73-year-old Caucasian female presented to the clinic with chief complaints of constipation and acid reflux. The constipation was subacute and accompanied by generalized lower abdominal pain. The patient reported having a Bristol Stool Scale #2-3 bowel movement every 3 days and straining to pass stool. She denied any blood, mucus, or undigested food in her stool. She also noted acid reflux symptoms for 3 weeks, which had been worsening over the past week with daily constant nausea, a substernal burning sensation, and regurgitation 3 times per day. These symptoms were affecting the patient's activities of daily living (ADLs).

The patient's current health concerns were complicated by a recent diagnosis of Parkinson's disease. The neurologic complaints began with anosmia and new-onset resting tremor of the right hand. The patient's history of restless leg syndrome and her family history of Parkinson's disease led to a neurology referral and subsequent diagnosis of Parkinson's disease after DaTscan. Carbidopa-levodopa (25-100 mg tab 3 times daily) treatment was initiated, which produced a mild improvement in

tremor but no improvement in anosmia. Her gastrointestinal symptoms appeared to be the latest development of her Parkinson's disease.

Other pertinent medical history (see Table 1) included diabetes mellitus, chronic kidney disease, hypertension, hyperlipidemia, and breast cancer. The patient has a psychosocial history significant for a 40-pack-year history of smoking (patient quit over 30 years ago), intermittent alcohol consumption, and self-reported decreased sense of purpose in life since being retired. She exercised intermittently but reported that the gastrointestinal symptoms were affecting her ability to keep up with her physical fitness.

Clinical Findings

The patient had a relatively benign physical exam. Anthropometrics revealed a body mass index (BMI) of 27.32, classifying the patient as overweight. Gastrointestinal exam was positive for moderate, bilateral lower abdomen tenderness and mild, diffuse abdominal tenderness, but was otherwise unremarkable. The patient's oropharynx was clear, without any signs of erythema. The patient had no signs of anemia. No rectal exam was performed, as the patient did not complain of rectal bleeding and had a recent negative colonoscopy. A 24-hour dietary recall was completed, which was complicated by decreased short-term memory. Analysis of this dietary diary (see Table 2) revealed nutrient deficiencies in terms of total calories per day, servings of fruits and vegetables (currently 0-1 servings per day), total water consumption, and fiber.

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Node Smith, ND

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Nausea, constipation, and anosmia are common side effects and early signs of Parkinson's.

See Table 3 for the patient's timeline, continuing through her 4-week follow-up at our clinic.

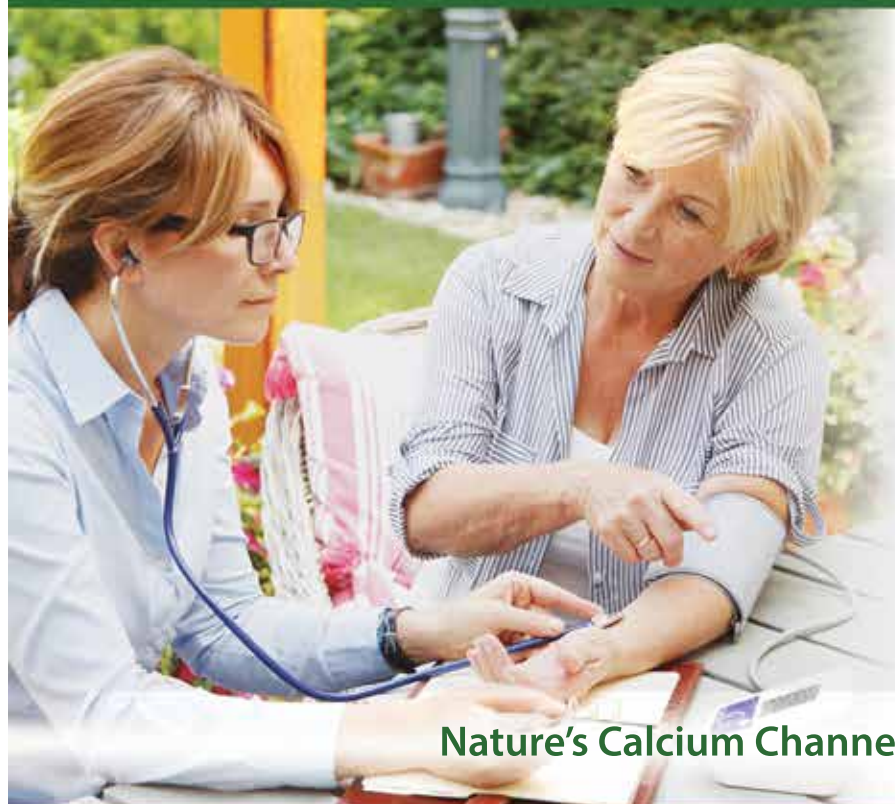
Diagnostic Assessment

The diagnoses of acid reflux and constipation were made on a clinical basis. The patient met the symptom, but not the *duration* of symptom requirement, for the Rome III criteria for functional constipation.⁴ The College of Gastroenterology guidelines states that no laboratory studies and imaging are indicated unless constipation does not respond to treatment.⁵ The patient's

symptoms of acid reflux, including regurgitation, nausea, and retrosternal burning sensation, warranted a diagnosis of gastroesophageal reflux disease (GERD), as clinical symptoms alone can serve as a diagnostic marker.⁶ To further confirm a diagnosis of GERD, an upper endoscopy would be indicated to assess if the patient had concomitant esophagitis or cellular changes; however, this was not warranted due to the subacute nature of her symptoms.⁶

Some challenges involved in evaluating, diagnosing, and treating both acid reflux and constipation in this patient

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were that they are multifactorial issues with multiple etiologies. The patient's comorbidities and pharmaceutical medication, specifically carbidopa-levodopa (due to its side effects of nausea and constipation), contributed to her symptoms.² Lastly, a diet with high sugar, low dietary fiber, and decreased water intake could further cause the patient's gastrointestinal symptoms. Her recent diagnosis of Parkinson's disease, implementation of carbidopa-levodopa, and dietary changes due to anosmia seemed to be the most likely triggers.

Gastrointestinal symptoms are common with conditions such as Parkinson's disease.⁷ The prevalence of GERD in patients with Parkinson's disease was found to be 4.1 times higher than in those without.⁷ One theory involves Lewy bodies causing neuronal degeneration

locally in the lower esophageal sphincter, Auerbach's, and Meissner's plexus.⁸ Constipation, due to slower transit times in Parkinson's disease, may present prior to motor symptoms.⁹ Two of the main side effects of carbidopa-levodopa are nausea and constipation.² Levodopa buffers the effect of decreased dopamine production from the substantia nigra region of the brain, and due to its quick absorbency rate, can cause dopaminergic reactions within the local GI tissues.¹² Carbidopa mildly decreases the side effect of nausea by not allowing levodopa to be decarboxylated outside of the brain, thereby decreasing dopaminergic effects in the gastrointestinal system.²

The patient's anosmia led to increased consumption of fried, salty, fatty, and sweet foods due to a decreased sense of smell that resulted in a decreased ability to taste food

and flavors.¹⁰ This can lead to a decreased fiber, phytonutrient, and water intake, all of which can cause constipation.¹⁰ Acid reflux symptoms are also exacerbated by consumption of fatty, fried foods.¹¹ Overall, this dietary change is an underlying cause of physiologic dysfunction.

Other diagnoses considered include colon cancer, inflammatory bowel disease (IBD), and irritable bowel syndrome (IBS). The patient had a recent negative colonoscopy, making a diagnosis of colon cancer less likely. Due to the subacute nature of symptoms, she did not meet the criteria for IBD, and her symptoms did not meet the ROME criteria for IBS. There was a high likelihood of complete symptom resolution regarding both constipation and GERD with proper patient compliance; however, the inability to completely remove underlying etiologies

of Parkinson's disease and carbidopa-levodopa could complicate prognosis.

Therapeutic Intervention

To address constipation and acid reflux in this patient with concomitant Parkinson's disease, a conservative treatment approach was applied using natural remedies. The treatment plan consisted of dietary recommendations, daily supplementation, and symptomatic relief. The most vital component of the patient's treatment plan were the dietary recommendations with strategies for implementation, described in Table 4.

Each dietary recommendation addressed a physiologic etiology related to the patient's complaints. Recommendation #1 focused on increasing the vitamin, mineral, and phytonutrient content of the patient's diet, which is linked to decreased gastrointestinal distress by reducing inflammation and increasing building blocks for healthy metabolism.¹² To increase compliance, healthy recipes were provided that incorporated herbs and spices, which served to increase her ability to taste food. Recommendation #2 was to decrease triggers of gastrointestinal distress, mainly added sugar and simple carbohydrates. Lastly, dietary recommendations #3 and #4 were given to address constipation through increasing fiber and hydration concurrently, which has been found to improve gastric motility.³

The constipation was addressed by magnesium citrate and a probiotic. The patient was taking magnesium citrate at a non-therapeutic dose of 450 mg/d, so the dose was increased to 900 mg/d. Magnesium is as effective in treating constipation as other bulk-forming agents.¹³ A probiotic containing over 5 billion CFUs of a mixture of normal bacterial flora was initiated at 1 capsule per day. Probiotics containing bifidobacteria and lactobacilli are effective at treating underlying gastrointestinal flora imbalances, improving gut motility, and decreasing constipation.¹⁴

Two natural supplements were initiated to treat the symptoms of GERD. Apple cider vinegar, to assist with digestion, was started at 1-2 tsp in 1 oz of water 30 minutes before meals. The proposed mechanism is that consumption of an acidic food can increase secretion of gastric acid and digestive enzymes, thereby helping to speed digestion of food and gastric emptying. Patients on carbidopa-levodopa have slower gastric emptying times, increased acid production, and more acid reflux.¹⁵ Deglycyrrhizinated licorice (DGL) was started, as needed, to provide symptomatic relief of dyspepsia; studies have shown it to improve symptoms of dyspepsia by 40% compared to placebo.¹⁶ Although the overall treatment strategy was aimed at addressing dietary dysfunction due to anosmia, not all causes could be removed, since part of the etiology included Parkinson's disease and the medication needed to treat it. Therefore, additional treatments were provided to help the patient have symptomatic relief without severe side effects.

Follow-up & Outcomes

There were several treatment outcome goals for this patient. Within 1 week, constipation should be improved with passage of a single, formed bowel movement daily. The symptoms of acid reflux should also be decreased by 50%, or she should be symptom-free for at least



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Table 1. Pertinent Past Medical History

Condition	Diagnosis	Status
Breast Cancer	1993	Stage 0, left breast, more than 5 mm, no chemotherapy, bilateral mastectomy
Hypothyroidism	1993	Controlled on 100 µg/d levothyroxine TSH 1.8 uIU/mL on 4/18/17
Diabetes Mellitus Type II	2008	Uncontrolled on 5000 mg BID metformin HbA1c 6.8% on 4/18/17
Chronic Kidney Disease	2012	Moderate, Stage 3 GFR 54.2 on 4/18/17
Depression	2012	2000 IU vitamin D
Anxiety	2013	Controlled with 0.5 mg clonazepam at night Taking 450 mg/d magnesium citrate
Restless Leg Syndrome	2015	Controlled on 0.25 mg pramipexole nightly
Parkinson's Disease	2016	Treated with 100 mg TID carbidopa-levodopa
Hypertension	Unknown	Fish oil (unknown dose)
Hyperlipidemia	Unknown	Controlled on 20 mg/d simvastatin Lipid panel on 4/18/17 within normal limits Taking 10 mg CoQ10

(TSH = thyroid-stimulating hormone; GFR = glomerular filtration rate; CoQ10 = coenzyme Q10)

Table 2. 24-Hour Dietary Recall

Breakfast	Granola with almond milk
Lunch	Blueberries with mixed nuts
Dinner	Bosnian bread with hot dog topped with onions, mustard, and ketchup
Snacks	Cannot remember snacks
Drinks	"Big Gulp" of diet cola, beer with dinner, and approximately 48 oz of water per day. No coffee.
Food Avoidance	Patient avoids dairy due to "feeling worse" when consuming it. Patient states she intermittently avoids gluten, but drinks beer and eats bread.

Table 3. Patient Timeline

Date	Clinical Visit	Diagnostic Workup	Intervention
2/1/16	<u>Initial Visit with PCP:</u> • CC: Tremor of hand at rest	<ul style="list-style-type: none"> Clinical history Complete neurologic exam 	Referral to neurologist
9/14/16	<u>Neurology Initial Visit:</u> • CC: Resting tremor of right hand and leg • PMHx of restless leg syndrome x 1 year on pramipexole • No other clinical signs or sx's of Parkinson's	<ul style="list-style-type: none"> Clinical history Complete neurologic exam which was unremarkable 	Repeat exam when the patient is not on pramipexole in 1 month during the late afternoon
10/13/16	<u>Neurology Follow-up:</u> • Patient examined without pramipexole prescription for 24+ hours • Patient reports mild tingling in toes without any other changes	<ul style="list-style-type: none"> Clinical history Complete neurologic exam, which was unremarkable outside of mild, resting tremor of right lower extremity and hand 	<ul style="list-style-type: none"> Ordered DaTscan at OHSU Ordered labs: SPEP, Immunofixation, Vitamin E (serum), Vitamin B6 (plasma), Copper (serum), BMP
11/15/16	<u>Results of NM Brain DaTscan:</u>	Usual comma-shaped striatal activity was absent. Activity present within both caudate heads, right greater than left, but no uptake was visualized within the region of putamina. This was consistent with striatal dopamine depletion as can be seen in Parkinson's disease and Parkinsonian syndromes.	
11/28/16	<u>Neurology Follow-up:</u> • Reviewed DaTscan results, which confirmed idiopathic Parkinson's disease	Exam consistent with visit on 10/13/16	Prescribed: carbidopa-levodopa 25-100 mg tab TID
1/10/17	<u>Neurology Follow-up:</u> • Patient reported sleep changes and difficulty with medication compliance (on TID dosing) • Reported improvement of tremor only 2-3 hours after medication	Exam consistent with visit on 11/28/16	<ul style="list-style-type: none"> Recommended physical activity including Rock Steady Boxing Referred patient to Dr Tuck, a Parkinson's disease specialist
4/19/17 5/11/17 5/26/17 7/7/17	<u>Physical Therapy:</u> • Goals were to maintain movement and increase energy level	<ul style="list-style-type: none"> Clinical history and exam without any significant skill deficiencies MiniBest Test score = 21/28 	<ul style="list-style-type: none"> Recommended Rock Steady Boxing and Tai Chi Walking program (2-4 min per day) with strengthening and balance exercises
7/24/17	<u>Initial Visit at NUNM:</u> • Constipation and generalized abdominal pain x 3 weeks • Symptoms of GERD occurring daily, including constant nausea, 2-3 episodes of regurgitation per day, and substernal burning sensation	<ul style="list-style-type: none"> Clinical history Complete abdominal exam Screening exam of cardiovascular, respiratory, thyroid, anemia, and peripheral vasculature 24-hour dietary recall Previous record and laboratory studies review 	<ul style="list-style-type: none"> Dietary recommendations Magnesium citrate and probiotic supplementation daily Apple cider vinegar and DGL supplement before meals
7/28/17	<u>1 Week Follow-Up:</u> • Constipation resolved • Acid reflux: 1-2 episodes per day without regurgitation • Constant nausea resolved • Compliant with 85% of treatment recommendations	None	<ul style="list-style-type: none"> Changed DGL to 30 minutes before meals Follow up in 2-4 weeks for symptom check-in
8/21/17	<u>4 Week Follow-Up:</u> • Constipation resolved • Acid reflux decreased to 1-2 episodes every 2-3 days • Compliant with 92% of treatment recommendations	None	<ul style="list-style-type: none"> No changes needed The patient will follow up in 4 more weeks for dietary counseling

(CC = chief complaint; PMHx = past medical history; SPEP = serum protein electrophoresis; BMP=basal metabolic panel)

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half the day. Within 1 month, the acid reflux should be decreased again by 50%, such that the patient is having only a few flares per day or no symptoms at all. These outcomes represent the ideal scenario, with complete adherence to treatment protocols including dietary recommendations.

Five days after our initial visit, the patient's constipation had resolved and she was having 1 Bristol stool scale #4 bowel movement per day without straining. The acid reflux had decreased to 2-3 episodes of regurgitation and nausea per day. The patient was compliant with the magnesium citrate, probiotic, and apple cider vinegar before at least 2 meals per day. Implemented dietary changes included increased vegetable consumption from 0-1 to 3 servings per day, cooking with herbs and spices, and decreased consumption of simple carbohydrates. She was drinking

64 oz of water per day. The patient had not found relief with the DGL while taking it as needed; it was therefore changed to 30 minutes before meals with the apple cider vinegar. The patient exceeded the 1-week treatment expectations with more than 50% improvement of the acid reflux symptoms and complete resolution of constipation. At the second follow-up, 4 weeks after our initial visit, the constipation was still resolved. The acid reflux symptoms had decreased to 1-2 episodes every 2-3 days with continued adherence to the treatment protocol. The patient was happy with the progress of the treatments, and planned to follow up in several weeks for further dietary counseling.

Discussion

Review of the medical literature shows a link between non-motor symptoms of

Parkinson's disease and diet, but there are no current protocols previously studied on dietary interventions to treat these complications. In this case, anosmia led to a dietary dysregulation, which was treated by dietary changes that decreased inflammation, controlled blood glucose, provided the building blocks for neurotransmitters, and decreased transit time for stool (allowing for an increased frequency of bowel movements). For this treatment to be successful, the patient had to be compliant and capable of making dietary changes. Difficulty could arise in patients who could not cook, make food choices, or perform ADLs on their own. It also relies on the physician to provide motivational interviewing to help the patient make the changes needed to implement this treatment strategy.

While the foundational aspect of this treatment plan was vital to lasting cure, patient compliance increased due to quick symptomatic relief. The only study looking at apple cider vinegar and deglycyrrhizinated licorice used together to treat acid reflux found that patients given a gum containing apple cider vinegar, licorice, papain extract, and calcium carbonate had decreased symptoms of acid reflux and nausea compared to placebo.¹⁷ Regarding constipation, there are multiple case reports showing magnesium's effectiveness in managing constipation; however, more controlled trials comparing it to laxatives or fiber are indicated. Lastly, there is research on probiotics for their ability to increase gut motility in animals, but human model studies should be

conducted to understand their mechanism of action.¹⁴

In conclusion, successful treatment of gastrointestinal dysfunction related to Parkinson's disease may be achieved with dietary changes and symptomatic relief without using pharmaceuticals. This case report acts as an initial guideline on the implementation of dietary recommendations supplementation to control gastrointestinal complications due to Parkinson's disease and carbidopa-levodopa. Further research should be done on long-term use of DGL, apple cider vinegar, magnesium, and probiotic supplementation to further evaluate their safety and effectiveness over time as Parkinson's disease progresses. ▀

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Table 4. Dietary Recommendations

Dietary Recommendation	Implementation Strategy
1. Increase fruit and vegetable intake to 5-7 servings per day	<ul style="list-style-type: none"> Try 1 new vegetable per day Half of each plate of food should be vegetables Flavor vegetables with herbs and spices to make them more palatable. Recommended spices include ginger root, basil, oregano, black pepper, turmeric, and curry. Provided simple vegetable recipes and cooking suggestions to make vegetables taste more appealing
2. Decrease added sugar and simple carbohydrate consumption	<ul style="list-style-type: none"> Substitute fruit for sugary snacks Consume protein at every meal Eat protein first to induce the satiety signal sooner and feel fuller longer
3. Increase fiber consumption to 30 g per day	<ul style="list-style-type: none"> See dietary recommendations #1 and #2 Consume grains with higher fiber-count, including quinoa, brown rice, and legumes and beans
4. Increase hydration by drinking 64 oz of water per day	<ul style="list-style-type: none"> Carry a water bottle Switch from diet soda to flavored seltzer water



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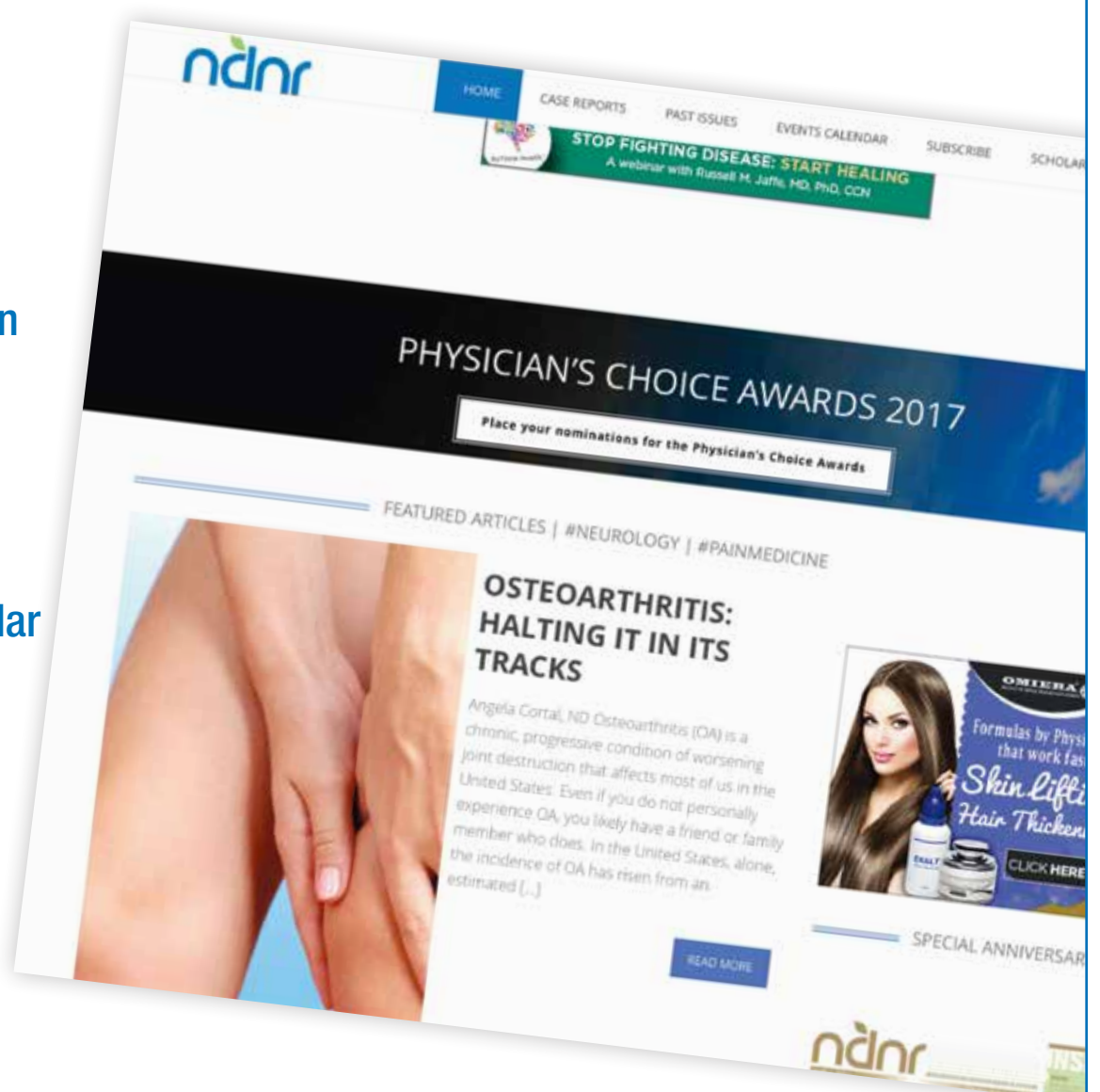
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Continued from bottom of page 1

managed on multiple medications that help maintain organ function but which also have adverse effects, particularly on eye health. These medications included alendronate (photosensitivity, uveitis), pregabalin (blurry vision), baclofen (amblyopia), and amiodarone (visual disturbances, photosensitivity). The effects of long-term amiodarone use on eye health are perhaps the most well-researched and include decreased visual acuity due to optic neuropathy, optic disc edema, and corneal deposits, which in some cases also cause visions of halos around lights, photophobia, dry eyes, and blurred vision.²

The visual exam at his initial visit revealed OD 20/100, OS 20/50, OU 20/50. The red reflex was present bilaterally, indicating a mild presentation of cataract, and the direct and consensual pupillary reflexes were diminished.

Age-Related Cataract

Cataract is the leading cause of blindness in the world, accounting for half of all cases.³ The 10-year incidence of cataract is estimated to be 54% for a US population aged 43 to 86 years.⁴

Age-related cataract development is painless, and the decline in vision is progressive. The lens is composed of stratified epithelial cells that are arranged in an ordered but highly complex structure. It is rich in cytoplasmic crystalline proteins, which impart transparency to the lens. Unlike other epithelia, the lens does not shed its nonviable cells and is more susceptible to the degenerative effects of aging and photo-oxidative damage.⁵ Most risk factors are environmental and lifestyle stressors that increase toxic burden and deplete the body's natural antioxidants, including age, smoking, alcohol consumption, excessive sunlight exposure, poor lifestyle habits such as malnutrition and physical inactivity, metabolic syndrome and diabetes mellitus, lead exposure, ocular trauma and infections, and the use of drugs such as systemic corticosteroids and statins.⁶ Among these, our patient's most significant risk factors included his advancing age, physical inactivity, organ compromise, and use of pharmaceutical drugs that adversely affect vision and eye health.

Currently, the standard treatment of cataract is intraocular lens implantation to restore normal vision.⁷ This surgical procedure is usually pursued when the diminishing visual acuity can no longer be corrected by

spectacles and begins to significantly affect activities of daily living (ADLs).⁸

Castor Oil & Eye Health

Castor oil, which is extracted and processed from the castor bean *Ricinus communis*, is a traditional remedy whose therapeutic use dates back to at least 1550 BC. It was first described as being used in the form of eye drops to protect the eyes from irritation.⁹ Among its healing properties, castor oil is notable for its ability to quell inflammation and promote lymphatic circulation. It has been used both externally and internally for a wide variety of conditions, from joint inflammation to uterine fibroids. The use of castor oil, especially as the heated compress we know today, was popularized by the work of Edgar Cayce (1877-1945), an American mystic who was also dubbed the "father of holistic medicine."¹⁰

In recent years, studies on the use of castor oil for eyes have found that it aids in the reformation of the lipid layer of the tear film and prevents evaporation of the existing tear film.¹¹ It also increases the lubrication ability of eye drops and improves meibomian gland function in patients with gland dysfunction.¹² Several commercial eye drops today include castor oil as one of their active ingredients. It is well established that a healthy tear film is important for supplying nutrients and oxygen to the eye, preventing infection, and optimizing vision.¹³ We took advantage of these medicinal properties of castor oil in a topical application for our patient with mild cataract.

Treatments Based on the Therapeutic Order

We initiated several types of intervention at our patient's first office visit, working primarily within the bottom 3 tiers of the Therapeutic Order. These included nutrition, castor oil, and homeopathic remedies (Figure 1).

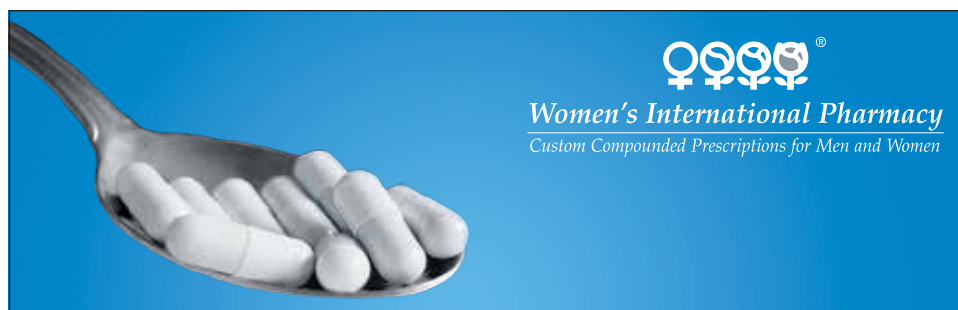
The first step of the Therapeutic Order is to *remove obstacles to health*, which most commonly include poor diet and sleep, sedentary habits, excessive stress, inadequate social support, and spiritual disharmony. As previously discussed, the patient presented with several obstacles to cure, most notably paralysis and dependence on pharmaceutical medications. However, he already had established many elements of the foundational layer of the Therapeutic Order. He boasted of a robust social


Studies on the use of castor oil for eyes have found that it aids in the reformation of the lipid layer of the tear film and prevents evaporation of the existing tear film. It also increases the lubrication ability of eye drops and improves meibomian gland function.

support network comprised of family, caretakers, and long-time childhood friends. He was also mindful of getting daily sunshine and fresh air despite his physical limitations, and he had few sleep complaints. Furthermore, he came to us already eating a nutritious, plant-based diet of fruits and vegetables, healthy fats, and proteins. We built on this foundation by recommending that he increase his intake of berries and tomatoes, which are high in several key nutrients found to be essential for eye function, including lutein, zeaxanthin, and antioxidants such as vitamin C. In a 2008 study, diets rich in lutein and zeaxanthin were moderately

associated with decreased prevalence of nuclear cataract in older women.¹⁴ Similarly, vitamin C, in doses of at least 1000 mg daily, was found to result in a significant slowing of cataract progression, with only a handful of patients requiring surgery over the 11-year study period.¹⁵

We then moved up the pyramid to *stimulate the body's innate healing mechanisms*. This is usually accomplished through a variety of gentle therapies that promote whole-body healing, such as hydrotherapy, homeopathy, acupuncture, and meditation. In this case, we employed the use of castor oil for its emollient properties and ability to




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promote circulation. We recommended applying 1 drop of castor oil to the inner canthus of each eye nightly at bedtime, with the goal of allowing the oil to work overnight without the temporary side effect of blurred vision. Concurrent support included contrast hydrotherapy in the form of alternating warm and cool compresses to the eyes, which helps increase blood flow and further improve nutrient delivery and waste removal.

At times it may be necessary to support organ systems that have become weakened or damaged from longstanding disease and suppressed vitality. Botanical medicine, specific nutrient prescriptions, as well as previously mentioned modalities such as homeopathic remedies, are among the many targeted therapies available. We used low-potency, combination homeopathics that address specific organ systems of elimination. They work synergistically with other therapies to ensure that the patient can discharge accumulated toxins through 1 of 4 primary emunctories: skin, intestines, lungs, and the urinary system. We focused primarily on supporting the liver's function as the seat of elimination and the sorting of waste by using remedies that work at the cellular level to relieve hepatic congestion. We also supported the patient's kidney function in its vital role in blood filtration.

In addition to homeopathic remedies, the patient began taking the supplementary nutrients lutein and zeaxanthin, which complemented dietary intake to help protect against oxidative damage. He also started taking *Ginkgo biloba* and *Vaccinium myrtillus* (bilberry), both of which have been found to improve visual function and

retinal blood flow in patients with normal-tension glaucoma.¹⁶

Support to be considered in the future included *Cineraria maritima* and N-acetylcarnosine (NAC) eye drops. *Cineraria maritima* is a perennial plant of the Asteraceae family, native to the Mediterranean.¹⁷ Extracts of the plant in the form of eye drops have been studied for the treatment of cataracts as early as the beginning of the 20th century. Its healing effects are attributed to its potassium and iodine content, thought to be important for lens health.¹⁸ NAC, when applied to the surface of the eye, is metabolized into the protein L-carnosine, which has an antioxidant effect on the lens and has been shown to improve visual acuity and reduce glare sensitivity in patients with cataracts.^{19,20} The patient would also need to be monitored for increased risk of glaucoma, secondary to cataract formation, which could warrant earlier surgical intervention.

Outcomes & Conclusion

At the 1-month follow-up visit, the patient reported adherence to the recommended therapies with no difficulties, except that he took it upon himself to increase the castor oil drops to twice daily with no adverse effects. He reported subjective improvement in visual acuity. Visual exam revealed that while the left eye remained stable at 20/50, visual acuity in his affected right eye had improved from 20/100 (1 month earlier) to 20/70. At the 3-month follow-up, visual acuity remained stable, and the patient again reported continued

subjective improvement in vision, stating that he was better able to see the clock on his ventilator.

Our patient came to us with a commitment to adhering to the recommended treatment plan for at least 1 year, and he understood the importance of consistency. At the 1 and 3-month follow-up visits, he was happy to discover that his visual acuity had already improved. His case demonstrates that despite significant obstacles to cure, the body nevertheless reveals its miraculous ability to heal when working simply and diligently on the foundational layers of health through the Therapeutic Order. ▀

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Gold Standard or Double Standard?

Evidence-Based Healthcare in Medical Malpractice

SEAN ELIZABETH JACKSON, BA (HONS)
JASON MARR, BSC (HONS), ND

When evidence-based medicine (EBM), now known as evidence-based healthcare (EBHC), was first introduced in Canada, it was defined by Sackett as the “explicit, judicious, conscientious use of current best evidence from healthcare research.”^{1,2} While this definition still exists today, EBHC has narrowed its focus of healthcare research by emphasizing the importance of systematic reviews and meta-analyses of randomized control trials (RCTs).²⁻⁵ While this narrowing focus of EBHC is not currently or necessarily considered the single standard of care, the movement towards its isolation as such has begun. With the domination of EBHC in conventional medicine, there is increased demand to incorporate EBHC into the standard of care across all philosophies of medicine and healthcare.¹

EBHC & Naturopathic Medicine

The integration of EBHC within naturopathic medicine has always been far from satisfactory.^{4,5} Naturopathic medicine, like many non-mainstream medicines, is continuously criticized for its methods of practice.^{4,5} Many critics have claimed naturopathic medicine as a pseudoscience,

accusing naturopathic physicians of not being evidence-based.⁶ EBHC, by definition, may include healthcare research such as case reports, cohort studies, and expert opinions; however, they are all seen as unreliable evidence with less value relative to systematic reviews and meta-analyses of RCTs.⁵ Therefore, while naturopathic medicine does incorporate EBHC, it does not always align with the hierarchy of evidence.

However, critics who condemn naturopathic medicine by comparing it to conventional medicine do so by way of a double standard. Some would argue that the majority of conventional medicine remains unsupported by scientific evidence.² According to some research, conventional medicine only makes about 15% of its decisions using scientifically valid studies.⁷ So why do critics accept conventional practices as an absolute truth when they equally lack good evidence to support many common practices and therapies? Should conventional medicine not be subject to equally valid criticism as that of naturopathic medicine?

Beyond these philosophical questions, there is a much more pragmatic issue of concern: legality. If EBHC is permanently implemented into the standard of care in naturopathic medicine, are naturopathic doctors running the risk of malpractice? As naturopathic research does not always

Critics who condemn naturopathic medicine by comparing it to conventional medicine do so by way of a double standard.

adhere to the EBHC gold standard, what are the ethical and legal implications of practicing naturopathic medicine? Does EBHC truly have absolute power?

Researchers claim that EBHC “uses science to search and define a single, unimpeachable truth that can stand alone against all other methods of practice.”⁸ However, EBHC and its scientific theories are primarily subjective.¹ The theories behind EBHC can be flawed, they can be biased, and, most importantly, they can change.^{1,9,10} EBHC is only as good as the scientific knowledge and research methodology that are presently available, and the appropriate use of that information as applied to a patient or group in context. There are always conflicting theories, which can make it impossible to determine which theory is absolute. EBHC does have its limitations and is not considered the gold standard in all professions. By discussing where EBHC is not seen as the absolute form of knowing, it will be argued why there is an opportunity to move healthcare research in a different direction to support the validity of naturopathic practices.

the healthcare system, there are those methods that are not of proven benefit.¹² Therefore, a naturopathic treatment method may be weaker scientifically than conventional medicine would require, but that does not mean that it has no validity in the absence of solid scientific research to prove that it has none. If it has some reasonable therapeutic basis, although it may not be the EBHC gold standard, it may still be considered an appropriate form of treatment. Furthermore, even if not scientifically certain, the method may still be accepted as valid in court rulings if it would have been followed by enough practitioners that it would be considered standard practice. As research states, the defendant could subsequently use EBHC to justify his use of therapy, as long as enough practitioners in this particular circumstance would also adhere to it.⁸

However, even when evidence seems scientifically conclusive, it has its limitations.

Populations & Samples are Not Individuals

There are many variables that can determine a legal case, which makes it very difficult to apply EBHC in court.¹³ Like the practices of naturopathic doctors, the judicial system focuses on highly individualized cases.¹⁵ In medical malpractice lawsuits, the standard of practice needs to be determined, and it must be proven to be applicable to the particular circumstance of that specific case. With many variables to consider, including history, genetics, sex, age, health, and environment or context, much of EBHC cannot be accurately adopted to the individual.

In EBHC, particularly RCTs, individualized care is not preserved.¹ RCTs are usually a generalized overview of cases that may not be applicable at the individual level because distinctive samples of populations are studied in RCTs that may not reflect the individual in question.^{3,14} The RCTs may even be inappropriate for the patient. Research confirms that patients hardly ever fit the textbook version of disease.¹⁰ For example, the patient may have multi-morbidities that would interfere with the results proven in the RCT.¹⁰ Due to these variables, and subjective analyses of provided EBHC outcomes, there will always be expert opinions in the courtroom that conflict, especially when research conflicts with or threatens powerful interests.

Junk Science is Pseudoscience

Another reason EBHC is not seen as an absolute power in a court of law is because of the introduction of “junk science.”¹⁷ Many critics accuse naturopathic medicine of being a pseudoscience; however, some suggest that the real pseudoscience occurs among powerful interests in a court of law.

The efficacy of EBHC is further

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EBHC & a Naturopathic Doctor Walk into a Bar

Let's consider that a naturopathic doctor is going to court, having been accused of malpractice. Would he or she be held accountable to the hierarchy of EBHC? While EBHC is gaining influence in conventional medical practice, it does not have the same influence in medical malpractice lawsuits.

It is well recognized by the judicial system that evidence and facts are disputable in a court of law.⁸ While some professionals view EBHC as an unimpeachable truth, expert opinions in court are welcome to disagree.⁸ This is because courts focus on customary practice in cases of medical malpractice.

It is up to the judge to decide if EBHC is allowed in the courtroom.⁸ Furthermore, some judges consider EBHC a statement made outside the court of law when the speaker was not under oath.⁸ In such a situation, EBHC may not determine malpractice or have influence in court rulings.¹¹ Since EBHC is based on theories, it is important to determine how scientifically conclusive a particular study is in establishing a particular fact: A plaintiff cannot use EBHC as proof of malpractice if it is not determined to be scientifically sound.⁸ This establishes that the plaintiff must have definitive proof that the physician failed to meet the standard of care as opposed to having hypothetical or theoretical studies that may or may not reflect the standard of care. Treatment methods exist in the healthcare system that are of proven benefit but are not included in the standard of care. And within the existing standards of care in

hindered when powerful interests are threatened.¹⁵ These powerful interests fund their own research to challenge the claims made against them.¹⁵ This version of junk science is considered insufficient research when backed by tainted interests.¹⁰ Since it is well recognized that evidence and facts are disputable in a court of law and expert analyses are subjective, junk science makes it impossible to determine what is reliable. For example, when research proved the definitive health risks of smoking, cigarette manufacturers began conducting independent research and hiring paid expert witnesses to establish that the original research was inconclusive.¹⁵ This highlights another example of the double standard: when EBHC conflicts with powerful interests, the relative efficacy and value of EBHC declines in court.

With the introduction of junk science in the judicial system, it is difficult to find consistent EBHC that follows true, rigorous research.¹⁶ As the research standard continues to be distorted by tainted interests in court, it makes it impossible to know how much EBHC has its own agenda. With so much biased research circulating within the healthcare system, it is not realistic to have EBHC be the gold standard of care in all cases.

Gold Standard Today, Gone Tomorrow

While some worry that EBHC could become an absolute power, it is not an absolute truth.¹ By discussing where EBHC is not seen as the absolute form of knowing, there is an opportunity to provide support for

the validity of naturopathic practices in healthcare research.

EBHC is subjective, and its theories and methods can be flawed. Research reveals how EBHC can be biased and how it can be tailored or manipulated to reach desired outcomes, particularly in cases where powerful interests intersect.¹⁹ It also shows how EBHC findings are only as useful as the scientific knowledge and research methodology that are presently available, which may not reflect the interests of the individual. Additionally, it emphasizes the importance of providing proof of the standard of care over using EBHC to prove medical malpractice.

There will always be conflicting theories in EBHC. There are so many studies being conducted that it is impossible to know which is absolute. After all, they are just based on theory. Researchers state that theories are always ranked from least accurate to most accurate and they are interchangeable.⁹ Thus, under close scrutiny, any theory could be proven unreliable. Just because a theory is the gold standard today, does not mean it will remain so tomorrow. In the definition of EBHC, Sackett explains that if no RCTs exist in certain areas of study, the next best method in the hierarchy of evidence can be used.¹⁷

New research is also being explored emphasizing the importance of looking at all methods of evidence equally. Researchers state that EBHC needs to step away from the "outdated" hierarchy of evidence and consider individual reasoning, case studies, and clinical expertise alongside systematic reviews

and meta-analyses.^{14,18} So, if a naturopathic doctor has been practicing in a particular manner over a long period of time that may not be supported by RCTs but has been proven to be safe and effective at an individual level, this may be considered proof enough.

If naturopathic doctors are careful, follow a comprehensive methodology, and see positive results in their patients, how can such outcomes be called a pseudoscience? Perhaps the healthcare system should work towards developing research designs and standards of evidence that accurately reflect all approaches to healthcare, respecting the fundamental entirety and spirit of EBHC, and not only the reduced focus that has become its legacy. ▀

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Adult Onset Acne

A Case Study & Clinical Perspective

BRIANA CAIN, NMD

Late-onset adult acne is a condition that seems to be presenting in many naturopathic medical practices at a growing rate. I see roughly 2 new cases of late-onset acne every month, with the majority of these cases being females over the age of 25. Each case comes with its own unique story and history. The possible etiologies for adult-onset acne are numerous, including hormone imbalance, food sensitivities, improper skin-care regimens, environmental toxins, bacterial overgrowth in the skin, stress,

genetics, side effects of medications, and an undiagnosed medical condition.¹ For these reasons, late-onset adult acne requires the principle of *tolle causam* to achieve clearance. What follows is the review of a gratifyingly successful case of a patient that I started treating about 18 months ago.

Patient History

ET is a 41-year-old female who presented to my office with acne that was disseminated over her face and included over 15 acneic lesions. The lesions were very red, painful, and cystic (Figure 1). The acne increased with stress and was

worse prior to menses. ET was nulliparous and her menstrual cycles were irregular. ET is a business owner and often finds herself under an inordinate amount of stress. She also reported some bloating around the midsection. She was taking a multivitamin and exercising regularly. At the time of her first visit, she was seeing a laser tech/esthetician every 2-4 weeks for acne IPL (Intense Pulsed Light) treatments and facials. The IPL and facials had produced a very minor temporary improvement in her skin. She also had a very extensive skin-care regimen with multiple different products.

Treatment³⁻⁶

The etiologies highest on my differential list for this patient included hormone imbalance, inflammation in the digestive tract, and stress management issues. I ran labs, including CMP, CBC, TSH, free T4, free T3, thyroid antibodies, day-21 progesterone, estradiol, testosterone (free and total), DHT, DHEA-S, 25-OH-vitamin D, and an IgG food sensitivity panel. CBC, CMP, the thyroid panel, DHT, vitamin D, estradiol, and testosterone tests all resulted in appropriate levels. Day-21 progesterone and DHEA were low. The food sensitivity panel revealed significant sensitivity to 4 foods.

Her supplementation plan was as follows:

1. Continue multivitamin
2. Micronized progesterone troche: 100 mg at bedtime, days 18-28 of cycle
3. DHEA: 5 mg daily
4. Fish oil: 3000 mg daily
5. Vitamin A: 50 000-100 000 IU daily (as tolerated without headache), in divided doses
6. Proprietary mixed herbal formula to support HPA axis (*Rhodiola rosea*, *Ocimum sanctum* [holy basil], *Avena sativa*, *Schisandra chinensis*, and *Withania somnifera* [ashwagandha]): 2 caps daily before 2 PM
7. Digestive enzymes with each meal
8. Increase water intake to 80 oz daily
9. Avoid positive foods on sensitivity test

Follow-up Visits

Three Months

ET had experienced significant improvement in digestive symptoms, mostly decreased bloating. Her cycle had become more regular, occurring at 30-34-day intervals. She reported an increase in energy and improvement in her exercise tolerance and recovery. Stress was still very high. The acne had improved about 35%.

I advised ET to continue the protocol as prescribed and to focus on healthy outlets for stress. We ran labs for progesterone and DHEA, which were much improved. I also advised that ET reduce her skin-care regimen and begin using only a gentle cleanser, fragrance-free moisturizer, and an SPF-sunscreen when outdoors. ET was insistent upon continuing with her retinol cream at bedtime, but I was able to convince her to lower the strength to 0.5% and apply it every other night.

Six Months

ET reported an improvement in her stress level, an increase in exercise frequency. She was feeling really good while taking the progesterone, mostly likely due to improved sleep. The acne did not seem to have improved any further.

I advised ET to discontinue her IPL treatments, as studies indicate only short-term resolution, and I suggested she consider a more aggressive laser treatment to address the overactivation of the sebaceous complexes in the skin.² She agreed to an ablative laser treatment using a hybrid laser at 1470 nm and 2940 nm. The results were astonishing. ET saw 80% clearance of her acne after the ablative laser treatment. I recommended that ET be treated every 4 weeks with either a non-ablative 1470 nm laser treatment or a glycolic chemical peel.

One Year Later

ET has been very compliant with

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the supplement and lifestyle recommendations. She continues to avoid her food sensitivities and has started a self-prescribed detox. To date, ET has had 2 non-ablative 1470 nm laser treatments and 4 glycolic chemical peels. She has increased her retinol use to every night but continues to use a gentle cleanser and moisturizer twice daily. ET has maintained an 80% clearance of her acne and reports that any residual lesions are very superficial and no longer painful or cystic (Figure 2).

Her menstrual cycle remains somewhat irregular, with menses occurring every 30-44 days. I recommended a repeat of the initial hormone labs. ET is exercising regularly and invested in some personal development seminars, which have improved the operation of her business and reduced her stress level.

Discussion

In conclusion, I believe ET's acne was most related to stress levels and GI function. There may or may not

have been a hormonal component, as alterations in her deficient hormone levels did not seem to influence the frequency and severity of her acne. The sebaceous complexes in her skin had become overstimulated and hyperactive due to stress and systemic inflammation likely originating in the GI tract. Once those underlying causes were treated, the laser and chemical treatments successfully reduced the hyperactive production of the oil in the skin, and clear skin become a reality for ET. I also

speculate that the use of multiple skin-care products, with extensive ingredient lists, were promoting a protective mechanism by the skin of overproduction of sebum and increased inflammation in the dermis.

Adult-onset acne can be difficult to address and requires investigation into a number of causative factors. Managing patient expectations and encouraging patience and compliance with naturopathic therapies is often the key to success when treating this condition. ▀

Figure 1. ET Before



Figure 2. ET After



Briana Cain, NMD, is a board-certified naturopathic medical doctor practicing in Scottsdale, AZ. Dr. Cain graduated from the Southwest College of Naturopathic Medicine and Health Sciences in Tempe, AZ. Her primary focus in practice is anti-aging and functional medicine. Dr. Cain strives to build an empowering partnership with patients and she develops each treatment plan with the specific needs of an individual patient in mind. She teaches bioidentical hormone replacement therapy to other physicians and is a member of the International Hormone Society. She is also a member of the Arizona Naturopathic Medical Association and the American Association for Anti-Aging and Aesthetic Medicine.

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Red Light Therapy

How It Can Benefit Your Anti-Aging Regimen

JANNINE KRAUSE, ND, EAMP

The quest to slow down the aging process is a daunting one, with a plethora of options that seem to be ever-changing, like the “flavor of the month” at a local ice cream shop. In a little over a decade of practice as a naturopathic doctor and acupuncturist, I have discovered a few tools that have stood the test of time to slow down the aging process while also repairing damage and improving cellular health.

Red light and infrared therapy are 2 of my favorite tools to stimulate cellular metabolism and repair. Spectrums of light in the 620-800-nm range activate light-sensitive receptors in the energy-making processes of our cells, and also induce light-driven water-transport molecules. This process enhances molecular exchange in the skin that allows for removal of accumulated toxins, as well as promotes the infusion of molecules specific to cellular repair. In this article I will discuss how light therapy slows down the aging process not only by rejuvenating the skin, but also by enhancing mobility through reductions of joint and muscle stiffness. I will also discuss how to easily incorporate light therapy into your treatment regimens.

Light Therapy – Some History

To better understand why light therapy is

one of the best options you can add to your anti-aging regimen, we must take a look back at how its benefits were discovered. In 1893, a scientist named Niels Finzen published his first paper about the effects of light on the skin. Finzen would later discover that certain wavelengths of light initiate healing properties. His research demonstrating the benefits of ultraviolet light in the treatment of painful facial lesions of those suffering from lupus vulgaris would win him the Nobel Peace Prize in 1903. In 1993, Dr Finzen’s research served as the basis for Quantum Devices, Inc, and for NASA’s joint project to promote plant growth in space using High Emissivity Aluminiferous Luminescent Substrate (HEALS) technology.¹

Once NASA determined that they could stimulate plant growth using red LED light, they began extensive clinical trials at the University of Wisconsin at Madison to examine the ability of near-infrared light to relieve muscle spasms, joint pain, and stiffness and to increase blood flow in the tissues where it was applied. Between 1995 and 1998, NASA and the University of Wisconsin conducted research proving red LED light’s benefit on the promotion of cell growth as a way to prevent bone and muscle loss in astronauts in space.² NASA’s research led to the development of a red LED device called the WARP 10 (Warfighter Accelerated Recovery by

Photomodulation), and later the WARP 75, which was used by special forces on the front lines for immediate first-aid care. The WARP 10 debuted in 2005, and the WARP 75, which covers 75 cm (versus the 10’s 10 cm), was available in 2008.³ Since the publication of NASA’s research in the 1990s, many research studies on red light and infrared therapy have demonstrated its benefits on wound healing, metabolism enhancement, and the reduction of fine lines, wrinkles, and acne.

How It Works

How does light therapy work? “Detailed analysis of the gene expression profiles in human fibroblasts revealed an influence of low-intensity red light with a 628 nm wavelength on 111 different genes that are involved in cellular functions, such as cell proliferation; apoptosis; stress response; protein, lipid and carbohydrate metabolism; mitochondrial energy metabolism; DNA synthesis and repair; antioxidant related functions.”⁴ “Red light therapy causes reactive oxygen species (ROS) to increase fibroblast proliferation and motility, suggesting that the elevation of ROS via photodynamic therapy can enhance the cellular functions of dermal fibroblasts through specific mitogen-activated protein kinase (MAPK) signaling pathways in vitro.”⁵ Red light and infrared therapy have the potential to increase

circulation, capillary formation, lymphatic system movement, ATP production, and testosterone production, as well as boost fibroblast activity and collagen formation.⁶

Many think of light therapy as dangerous, as they assume that any light therapy contains ultraviolet light. Ultraviolet wavelengths are in the 400-nm range, whereas red light therapy is in the 600-nm range and infrared light runs in the 800-nm range. Red light therapy, in wavelengths of 630-660 nm, has been found to be ideal for skin rejuvenation. A combination of red light therapy at 660 nm and infrared at 850 nm has been found to be the most effective for wound healing, general health, and post-workout recovery.⁴

How long does it take for light therapy to work? The answer depends on the goal of the treatment. On average, pain relief can be achieved in 1 session; however, results do not last unless treatments occur weekly for 9-12 weeks, or twice weekly for 4-6 weeks. Generally, improvements in skin tone and reduction of wrinkles and fine lines can be seen after 12 treatments, 48-72 hours apart, at 15-30 minutes per session.¹ On average, 1 session can boost the skin’s appearance, and after 3 sessions pore size is visibly reduced. Sessions in my office are 30 minutes in length using an LED red light therapy flexible panel device, and 20 minutes per



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specific location using my infrared lamp. According to one company supplying red light therapy devices, "improvement in fine lines and wrinkles can be achieved in 5 minutes a day at 12 inches away from the skin in 8-12 weeks." This company also notes that "general health benefits from red and infrared light therapy can be achieved in 10 minutes a day at 6 inches away from the body daily."⁸ In my office, we find that red and infrared light therapy results are optimal when the patient has 12 sequential sessions that are 2-3 days apart. I have found that results are best maintained with bi-monthly-to-monthly treatment sessions after the initial therapy course. Unfortunately, there isn't sufficient quality research data out there to support my findings at this time.

Applications & Instructions

Light therapy induces tissue healing and detoxification. In order to achieve optimal results, consuming a "clean" diet closest to nature is highly recommended, as the body is only able to heal itself if 1) there are sufficient nutrients available to induce repair; and 2) there are not excessive amounts of toxins coming in at the same time. I recommend that digestive system issues be addressed as well, since the gut lining status is reflected in the skin. Thus if you or your patients are suffering from small intestinal bacterial overgrowth (SIBO), Candida overgrowth, leaky gut, constipation, diarrhea, irritable bowel syndrome, psoriasis or eczema, to name a few common issues, make sure you are working to address these conditions in order to obtain ideal results.

In addition to applying my light therapy devices to the face, neck and hands to induce collagen production and reverse damage to aging skin, I use light therapy to stimulate the healing of wounds and post-workout recovery and for the treatment of tendon, ligament and muscle injuries, stiffness, and pain. I often combine the light therapy with peels, micro-needling, acupuncture, cupping, guasha, and trigger-point injections.

I utilize 2 main devices. One is a TDP lamp (Teding Diancibo Pu), which is a special electromagnetic spectrum lamp. This type of light therapy is best for pain, stiffness, and muscle spasms. The ionized plate heats up and emits invisible, infrared light that penetrates up to 3 inches into the skin and can increase circulation to areas of pain and stiffness. The other device I use is the LED red light therapy flexible panel device, which is a red, blue, and infrared light combination light pad that can be placed over the face, neck, any joint, the back, abdomen, or gluteal muscles to target areas of pain or in need of rejuvenation, or be used to enhance cellular detox of areas prone to cellulite. This device is easy to use during an acupuncture treatment or after a micro-needling, facial, or peel session to enhance results.

Specific precautions must be taken with the TDP lamp, as it emits heat, whereas the LED red light therapy device does not. To ensure that the TDP lamp does not burn the surface skin of the patient, I generally do not leave the lamp in the same location for more than 20 minutes, and it must be at least 6 inches away from the skin surface. The LED red light device does not have a distance restriction; however, I keep it 2 inches from the skin surface and ensure that my patients wear protective goggles

to protect the eyes when the device is used over the face.

Light therapy is best used frequently and on a regular basis to continually stimulate cellular metabolism. Our cells contain little factories in them. Anything that ages, whether it be cars, washing machines, or all the cells in our bodies, requires maintenance. As we age, circulation to our cells becomes less efficient, causing skin, muscles, ligaments, and tendons to become dehydrated, malnourished, and toxic. Insufficient flow of water and nutrients to the skin prevents skin cells from properly repairing and detoxifying themselves. This results in cellulite formation, as well as thinning, drooping skin, and the formation of fine lines and wrinkles. At the same time that the exterior skin is gradually damaged, the muscles, tendons and ligaments become

less mobile, more prone to injury, and filled with toxins, all of which can contribute to stiffness, pain, and swelling.

Summary

By utilizing light therapy, one can either cue the body to enhance metabolism in a large area, for total body cellular enhancement, or focus on a specific area of damage or pain. In addition to the TDP lamp and the LED red light therapy flexible panel device, red and infrared light panels and saunas are available that can stimulate the entire body. An LED red light therapy hanging wall panel is one example of a body light panel, and high-quality home infrared saunas are also available. All are great investments in your individual and patient's health. Some companies are now offering the option of renting light therapy devices for the duration of the desired

treatment, to increase compliance.

As red light therapy evolves, more options will become available to you and your patients. I highly recommend adding these therapies to your practice, as they are a great way to enhance results while also adding to your income stream. ▀

References available online at ndnr.com



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Physical Activity Monitors

A Clinical Tool for Motivating Knee OA Patients

JU YOUNG YOO, BSC
ADAM GRATTON, MSC, ND

Osteoarthritis (OA) is the most common form of arthritis, affecting more than 10% of Canadians aged 15 years or older.^{1,2} The cost associated with OA in Canada was estimated to be \$27.4 billion in 2010 and is projected to be \$89.4 billion by 2030.² The knee is the most commonly affected joint in OA, and studies have reported that knee OA reduces the quality of life by negatively impacting physical and mental health, limiting daily activities, and lowering employment.³⁻⁵

Once believed to constitute a loss of hyaline articular cartilage of the knee joint, knee OA is now considered a disease of the whole joint and its associated structures.⁶ The etiology of knee OA depends on many different systemic factors (including age and gender) and local factors (including employment and weight). Older age has been shown to increase the risk of knee OA,⁷ and women are more likely than men to develop knee OA.⁸ Additionally, occupations involving heavy physical activities,⁹ as well as high body mass index, increase the risk of developing knee OA.¹⁰

Despite medical advances over time,

there is no known cure for knee OA; however, treatments are available to reduce the symptoms.¹¹ First-line treatment for knee OA is physical activity,¹² which has been shown to decrease pain and improve quality of life.¹³ Increased physical activity is particularly important for people living with OA given their increased risk of cardiovascular diseases.¹⁴ Reducing sedentary time can also improve physical function in adults with knee OA.¹⁵ The Canadian Physical Activity Guidelines, put forth by the Canadian Society for Exercise Physiology, recommends at least 150 minutes of moderate-to-vigorous physical activity

per week in bouts of 10 minutes or more for people with arthritis, to maintain good health.¹⁶ However, a meta-analysis reported that only 13% of patients with hip or knee OA met this guideline,¹⁷ which may be due to lack of motivation¹⁸ or lack of advice from health professionals regarding exercise.¹⁹

Behavior-Changing Techniques in PA Monitors

Currently, 1 in 6 consumers in the United States uses wearable technology, which includes pedometers and physical activity monitors.²⁰ Results of a systematic review suggest that pedometers in combination with behavior-change-based interventions, consisting of various daily step goal-setting strategies and individual-based performance feedback, were most effective at increasing physical activity levels among the musculoskeletal disease populations.²¹ In addition, pedometers have shown benefit in patients with knee OA in terms of increasing overall activity,^{22,23} improving functional ability,²³ and relieving pain,^{23,24} and could be used as a motivational tool for increasing step goals.²²

Several commercially available physical activity monitors represent an improved technology over pedometers, as they are equipped with clinical behavior interventions that may improve physical activity.^{25,26} From Coventry, Aberdeen, and London, this refined (CALO-RE) taxonomy contains 40 items specific to behavior-changing techniques, as described in Table 1.²⁷ The physical activity monitors are outfitted with some of these 40 items, and according to a systematic content analysis of 13 wearable monitors, the monitors allow users to track their own behavior, set goals, and compare their behaviors to those goals.²⁵ A critical analysis reported that the number of behavior-changing functions in the monitors varied from 10 to 23, with the most common behavior-change interventions found in them being goal setting, self-monitoring of activity, historical review of past activity, and optional interaction with other users for social support,²⁶ which has been shown to motivate inactive older adults living with OA to be more active.²⁸

The physical activity monitors also provide visualization of the physical activity levels that may facilitate the patient's disease management.²⁹ The monitors are also equipped with gamification techniques, which include rewards, praise, and reminders that help motivate users to reach their daily goal.²⁹ It has been systematically reported that rewards for successful behavior constitute one of the most effective behavior-changing techniques to improve physical activity in older adults.³⁰ Overall, physical activity monitors have been demonstrated to be a positive behavior modification tool for promoting physical activity among older adults with chronic illness, including arthritis.³¹ In addition to the behavior tools, when a physical therapist supplemented the physical activity monitors with activity counseling for patients with knee OA, a trend of improvement in moderate-to-vigorous physical activity was noted.³²



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Definitions of Behavior Change Techniques – CALO-RE Taxonomy²⁷

- 1. Provide information on consequences of behavior in general**
Information about the relationship between the behavior and its possible or likely consequences in the general case
- 2. Provide information on consequences of behavior to the individual**
Information about the benefits and costs of action or inaction to the individual or tailored to a relevant group based on that individual's characteristics
- 3. Provide information about others' approval**
Involves information about what other people think about the target person's behavior. It clarifies whether others will like, approve, or disapprove of what the person is doing or will do.
- 4. Provide normative information about others' behavior**
Involves providing information about what other people are doing, ie, indicates that a particular behavior or sequence of behaviors is common or uncommon among the population or among a specified group
- 5. Goal setting (behavior)**
The person is encouraged to make a behavioral resolution (eg, take more exercise next week). This is directed towards encouraging people to decide to change or maintain change, but does not involve planning exactly how the behavior will be done and either when or where the behavior or action sequence will be performed.
- 6. Goal setting (outcome)**
The person is encouraged to set a general goal that can be achieved by behavioral means, but is not defined in terms of behavior (eg, to reduce blood pressure or lose/maintain weight), as opposed to a goal based on changing behavior
- 7. Action planning**
Involves detailed planning of what the person will do, including, as a minimum, when, in which situation, and/or where to act
- 8. Barrier identification / Problem solving**
This presumes having formed an initial plan to change behavior. The person is prompted to think about potential barriers and identify ways of overcoming them.
- 9. Set graded tasks**
Breaking down the target behavior into smaller, easier-to-achieve tasks and enabling the person to build on small successes to achieve target behavior. This may include increments towards a target behavior, or incremental increases from a baseline behavior.
- 10. Prompt review of behavioral goals**
Involves a review or analysis of the extent to which previously set behavioral goals (eg, take more exercise next week) were achieved
- 11. Prompt review of outcome goals**
Involves a review or analysis of the extent to which previously set outcome

goals (eg, to reduce blood pressure or lose/maintain weight) were achieved

- 12. Prompt rewards contingent on effort or progress towards behavior**
Involves the person using praise or rewards for attempts at achieving a behavioral goal. This might include efforts made towards achieving the behavior, or progress made in preparatory steps towards the behavior, but not merely participation in intervention.

- 13. Provide rewards contingent on successful behavior**
Reinforcing successful performance of the specific target behavior. This can include praise and encouragement as well as material rewards, but the reward/incentive must be explicitly

linked to the achievement of the specific target behavior.

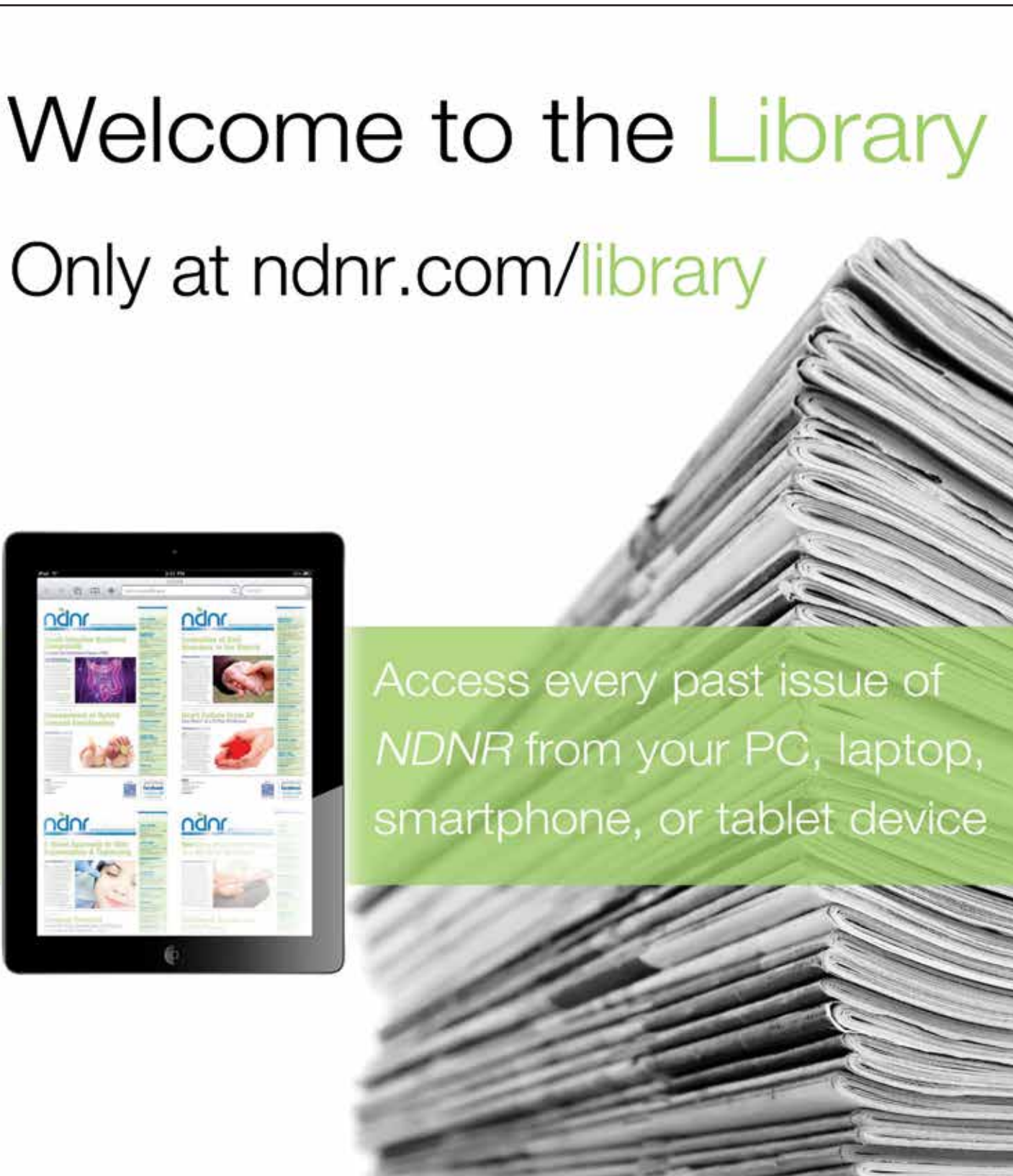
- 14. Shaping**
Contingent rewards are first provided for any approximation to the target behavior, eg, for any increase in physical activity
- 15. Prompting generalization of a target behavior**
Once a behavior is performed in a particular situation, the person is encouraged or helped to try it in another situation
- 16. Prompt self-monitoring of behavior**
The person is asked to keep a record of specified behavior(s) as a method for changing behavior. This should be an explicitly stated intervention

component, as opposed to occurring as part of completing measures for research purposes.


- 17. Prompt self-monitoring of behavioral outcome**
The person is asked to keep a record of specified measures expected to be influenced by the behavior change, eg, blood pressure, blood glucose, weight loss, physical fitness. It must be reported as part of the intervention rather than only as an outcome measure.
- 18. Prompting focus on past success**
Involves instructing the person to think about or list previous successes in performing the behavior (or parts of it)
- 19. Provide feedback on performance**
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participant with data about their own recorded behavior

20. Provide information on where and when to perform the behavior

Involves telling the person about when and where they might be able to perform the behavior, eg, tips on places and times participants can access local exercise classes

21. Provide instruction on how to perform the behavior

Involves telling the person how to perform a behavior or preparatory behaviors, either verbally or in written form. Examples of instructions include: how to use gym equipment (without getting on and showing the participant), instruction on suitable clothing, and tips on how to take action.

22. Model/demonstrate the behavior

Involves showing the person how to perform a behavior, eg, through physical or visual demonstrations of behavioral performance, in person or remotely

23. Teach to use prompts/cues

The person is taught to identify environmental prompts that can be used to remind them to perform the behavior (or to perform an alternative, incompatible behavior in the case of behaviors to be reduced)

24. Environmental restructuring

The person is prompted to alter the environment in ways that support the target behavior, eg, altering cues or reinforcers

25. Behavioral agreement

Must involve written agreement on the performance of an explicitly specified behavior, so that there is a written record of the person's resolution witnessed by another

26. Prompt practice

Prompt the person to rehearse and repeat the behavior or preparatory behaviors numerous times. Note: this will also include parts of the behavior, eg, refusal skills in relation to unhealthy snacks.

27. Use of follow-up prompts

Intervention components are gradually reduced in intensity, duration and frequency over time, eg, letters or telephone calls instead of face to face, and/or provided at longer time intervals

28. Facilitate social comparison

Involves explicitly drawing attention to others' performance to elicit comparisons. The fact that the intervention takes place in a group setting, or that an individual has been placed in groups on the basis of shared characteristics, does not necessarily mean social comparison is actually taking place.

29. Plan social support/social change

Involves prompting the person to plan how to elicit social support from other people to help him/her achieve a target behavior/outcome

30. Prompt identification as role model/ position advocate

Motivation counseling is one of the techniques absent from these monitors.

Involves focusing on how the person may be an example to others and affect their behavior, eg, being a good example to children

31. Prompt anticipated regret

Involves inducing expectations of future regret about the performance or non-performance of a behavior. This includes focusing on how the person will feel in the future and specifically whether they will feel regret that they did or did not take a different course of action.

32. Fear arousal

Involves presentation of risk and/or mortality information relevant to the behavior as emotive images designed to evoke a fearful response (eg, "smoking kills!" or images of the grim reaper)

33. Prompt self-talk

Encourage the person to talk to him/herself (aloud or silently) before and during planned behaviors, to encourage, support, and maintain action

34. Prompt use of imagery

Teach the person to imagine successfully performing the behavior or to imagine finding it easy to perform the behavior, including component or easy versions of the behaviour

35. Relapse prevention / Coping planning

This relates to planning how to maintain behavior that has been changed. The person is prompted to identify in advance those situations in which the changed behavior might not be maintained, and to develop strategies to avoid or manage those situations.

36. Stress management / Emotional control training

This is a set of specific techniques (eg, progressive relaxation) that do not target the behavior directly but which are designed to reduce anxiety and stress to facilitate the performance of the behavior

37. Motivational interviewing

This is a clinical method including a specific set of techniques involving prompting the person to engage in change talk in order to minimize resistance and resolve ambivalence to change (includes motivational counseling)

38. Time management

This includes any technique designed to teach a person how to manage their time in order to make time for the behavior. These techniques are not directed towards performance of target behavior, but rather seek to facilitate it by freeing up times when it could be performed.

39. General communication skills training

This includes any technique directed at general communication skills but not directed towards a particular behavior change

40. Stimulate anticipation of future rewards

Create anticipation of future rewards without necessarily reinforcing behavior throughout the active period of the intervention

Recommendations to Naturopathic Doctors

Naturopathic doctors could take advantage of the technology of these monitors in practice to promote physical activity for individuals living with knee OA. Although promising, behavior-changing techniques pertaining to self-efficacy, or individuals' ability to maintain their physical activity, were missing in the physical activity monitors, as shown in Table 2.²⁶ Motivation counseling is one of the techniques absent from these monitors. It was reported in a systematic review that motivation counseling, along with providing information on where and when to perform the behavior, are among the techniques promoting greater self-efficacy.³⁰ Physical activity monitors cannot solve the personal barriers related to the knee OA. However, using



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Table 2. Behavior-Change Techniques Absent from Wearable Activity Trackers²⁶

Barrier identification or problem-solving
Set graded tasks
Prompting generalization of a target behavior
Environmental restructuring
Behavioral agreement
Use of follow-up prompts
Prompt identification as role model or position advocate
Prompt anticipated regret
Fear arousal
Prompt self-talk
Prompt use of imagery
Relapse prevention or coping planning
Stress management or emotional control training
Motivational interviewing
General communication skills training

motivational counseling, naturopathic doctors can begin to address many of the comorbid psycho-emotional factors, thus allowing them to practice other behavior-changing techniques such as stress management, emotional control training, and relapse prevention, which were all missing techniques from the physical activity monitors.²⁶ Thus, by supplementing physical activity monitors with lifestyle and motivational counseling, naturopathic doctors can provide many behavior-changing strategies that help to increase the physical activity levels of their patients.

The most popular daily step goal of 10 000 steps per day may not be realistic for people with knee OA. More than 6000 steps per day may be a more attainable goal, as it also prevents the development of functional limitations in individuals with or at risk of knee OA.³³ By working together to set the daily goal, doctors can provide a realistic opinion on the patient's daily physical activities: if the goal is set too high, the patient may not meet it, resulting in demotivation. However, when daily step goals are met, patients may stay motivated and increase their physical activity in the future. The step goals should be tailored to the patient's limitations. As activity data are stored online, doctors can remotely access the data, which provides flexibility to both patients and naturopathic doctors.

Limitations of Physical Activity Monitors

Although these physical activity devices are commercially available, both accuracy and privacy of the patient's data may be a concern. As the research evidence on the validity of these devices is currently limited,²⁰ naturopathic doctors should only use these devices as a motivational tool rather than an objective measuring tool. As new devices and features are continuously released by the companies, more research examining the validity of these devices is warranted. Also, the software upgrades may change the algorithms of the calculations of the daily activities variables, which may negatively impact the accuracy or reliability of these trackers. Thus, if used in their practice, naturopathic doctors must stay up to date with the news of the physical activity monitors. The privacy of the data may also be problematic, as patients and doctors do not own the patient's physical activity data.²⁰ Rather, these data are stored by the manufacturer, who then can sell it to third parties.²⁰

The physical activity monitors are designed to be affordable, fashionable, and user-friendly. One particular device is priced as low as \$14.99 (USD) and tracks steps, calories, distance, sleep, and more. It also allows daily goal setting. Moreover, many of these monitors are offered in various colors with different patterns and designs. For example, one of the best known manufacturers offers 8 different types of trackers and additional accessories. The user-friendliness of these devices provides an opportunity for older adults with OA to benefit from these devices. One study reported that physical activity monitors were easy to use, useful, and acceptable for older adults aged 70 to 90 years and older.³⁴ Also, most recently released smartphones

have an accelerometer that can track daily activities. It has been previously reported that smartphones with activity-tracking applications were as accurate as physical activity monitors at measuring steps.³⁵ Although the research evidence on the accuracy of the physical activity monitors is limited, it may be a better measurement tool than self-report measures by the patients, which has reported both higher and lower levels of physical activity than objectively measures.³⁶

Conclusion

In summary, physical activity monitors are affordable and user-friendly, and allow flexibility for both patients and doctors, as the activity data is available online. These monitors are programmed with behavior-changing techniques that provide opportunities for naturopathic doctors

to promote healthy and active lifestyle to individuals living with knee OA to be more physically active. ▀

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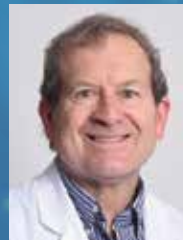
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Melanoma & Aspirin

JACOB SCHOR, ND, FABNO

Our patients often have strong beliefs about medicine, particularly natural medicine and the advantages it provides over standard medical practices. Most of the time this is a good thing. This is why they come to us as patients. They pay our rent, so to speak. They aren't the pragmatic patients who come looking for all possible options; instead, they are the ones who "believe" in what we do. The idea of evidence-based anything in such cases means nothing, and we'd be wasting our breath to mention published randomized controlled trials.

Of course, these are the same patients who tell you they've been "... doing research on the internet" and believe the cure for cancer is one of a list of improbable, unproven ideas. But let's not go there in this article. I mention these patients because a new paper will prove challenging to explain to these patients, and may illustrate well how patients' beliefs can get in the way of what might be considered sensible decisions.

Impressive Stats

In January 2018, the *Journal of the American Academy of Dermatology* published a study that asked whether aspirin use affected overall survival in patients with melanoma.¹ The study's authors took a retrospective look at 1522 patients who had been diagnosed with melanoma between 2000 and 2014. It was already clear, at least in mice, that prostaglandins produced by tumors and platelets in the blood promote melanoma progression. The authors wanted to know whether aspirin, which can lower platelet levels and prostaglandin production, might change the course of the disease. The patients in the study were followed through September of 2016.

The use of aspirin was associated with longer overall survival. Aspirin use reduced risk of dying by 42% (hazard ratio [HR] 0.58, 95% CI [0.45-0.75]). Aspirin did not change survival in patients with in-situ or stage I melanoma, but did improve survival in stages II and III disease by 55% and 43%, respectively (HR 0.45, 95% CI [0.24-0.82]; and HR 0.57, 95% CI [0.34-0.96]). Although stage IV patients trended toward better survival, the benefits did not

Isn't our foremost obligation to provide suggestions that will keep these patients alive?

reach statistical significance (HR 0.55, 95% CI [0.27-1.13]). It's also worth noting that "... patients using aspirin before diagnosis were less likely to be diagnosed in stages III or IV disease." One might assume that aspirin was also useful in early-stage disease; however, because mortality rates were lower in this group, statistical significance was difficult to reach.

Thus, at this point we can tell patients who have been diagnosed with melanoma that taking routine aspirin may cut their risk of dying from the disease by about half. This sounds almost too good to be true. And it might well be. Retrospective studies on things like this have an unfortunate habit of not producing similar benefit in more rigorous trials that are randomized and conducted prospectively. Deciding to take aspirin might, in fact, be associated with other health behaviors that alter the risk of dying from melanoma. People who take aspirin do so because they "want to do everything to stay healthy." Thus, they might also do other things that could change their health, such as exercise more, eat more vegetables, and so on. Perhaps it is one of these behaviors that improves melanoma prognosis. But still, these data reported in this paper deserve some attention. Aspirin is dirt-cheap, safe, and has a long list of other health-protective actions. One could easily think this is a no-brainer.

Must It be Aspirin?

But aspirin? Naturopathic patients frown on aspirin, or at least my patients do. "I don't believe in taking drugs," they tell me. Not: "I prefer to not take drugs."

These patients are fine taking "natural medicines" but are hesitant or refuse to take drugs. But what's the difference? And what does it have to do with naturopathic medicine? Our patients assume that naturopathy means something about

organic, non-GMO, non-pharmaceutical medicine. The principles we use to define naturopathic medicine don't mention these distinctions. Nor do our attempts to actually define naturopathy, say, as "a medical practice that employs the *vis medicatrix naturae* to restore health" help us discern the difference between natural medicines and drugs.

And what about something like aspirin, which was initially naturally derived, once upon a time, in the pre-Bayer era? Where does that fit in? It seems we have 2 competing images of naturopathic medicine that we need to sort out: the more traditional image of naturopathy stimulating natural healing forces in the body, and the more modern image generated by the health food industry that wants us to purchase "natural" foods and live naturally. Naturopathy and "Natural" are like 2 intersecting hoops in a Wen Diagram – 2 different sets that may share some similar characteristics but are not necessarily the same thing.

Ethical Obligations

And does it really matter? If aspirin will cut the risk of our melanoma patients dying by half, who are we to worry about principles and definitions? Isn't our foremost obligation to provide suggestions that will keep these patients alive? The bottom line is survival, isn't it?

It would be nice if we had something from our natural pharmacopeia that we could be sure was as effective as aspirin in this regard. Then this might become a moot question. In the meantime, we have an ethical obligation to not hide this information from our patients. ▀



Jacob Schor, ND, FABNO, along with his wife Rena Bloom, graduated from NCNM in 1991; they have practiced in Denver, CO, ever since. Both have been active in state association politics, taking turns as president of the currently named Colorado Association of Naturopathic Doctors. Dr Schor has also assumed various leadership positions in the Oncology Association of Naturopathic Physicians, has served on the AANP Board of Directors, and has periodically chaired the AANP's speaker selection committee. He is Associate Editor of the *Natural Medicine Journal* and is a regular contributor to the *Townsend Letter*. Dr Schor was the first recipient of the AANP's "Vis Award" and remains honored and humbled to have received such recognition.

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The Spanish Mantle

SUSSANNA CZERANKO, ND, BBE

All the chief pores of the whole body are opened by the Spanish mantle in a very mild way; the dirt and phlegm are excreted.

Benedict Lust, 1900, p.37

Younger persons dip the Spanish mantle into a cold decoction of hay flowers, older people into one that is warm.

Benedict Lust, 1903, p.318

The Spanish mantle is a long shirt with sleeves reaching to the feet.

T. Hartmann, 1905, p.373

The interestingly named “Spanish mantle” was an ingenious way of applying a full-body wet sheet without the fuss of needing an attendant to help apply the application. Hartman tells us that the Spanish mantle “has its name from a Spanish priest, who applied it very often.” (Hartmann, 1905, p.373) Used for serious illnesses, the Spanish mantle was used by the early Naturopaths along with other smaller water applications. This is an important point that we must not overlook. The early Hydrotherapists did not apply cold, full-body water applications, one after another. Rather, they spaced these between smaller hydrotherapies, and would often only prescribe 1 or 2 times a week. The

Spanish mantle was considered invaluable, and was used for many different ailments.

The primary reason to use a full-body wet wrap such as the Spanish mantle was to dissolve impurities of the body, for elimination. The Spanish mantle consequently produced a good sweat, which succeeded in the excretion of waste matter from the body. After a treatment, it was important to wash the patient with cold water. (Lust, 1904, p.148)

How To Apply A Mantle

The procedural steps for the Spanish mantle are much like the “wet sheet wrap.” The material used for the mantle was coarse linen, constructed into a large shirt that opened to the front and extended to the feet. “It should resemble a very wide, long night gown, open in the front.” (Lust, 1900, p.36) Before putting on the mantle, it is “dipped into cold water, wrung out and put on like an ordinary night shirt; one part folded will cover the other in the front.” (Lust, 1900, p.36)

Once the mantle is put on, the patient is next wrapped up within blankets that have been prepared beforehand. “As a rule, this application should not last longer than from one to two hours at the most. The duration depends upon the strength of the patient.” (Lust, 1900, p.36) Essentially, the more robust and larger the body mass, the longer the treatment time. Hartmann recommended that whole-body packs such

as the wet sheet wrap, when utilized with less robust patients, be applied as follows: “[for] delicate people one-half hour is sufficient; strong persons must have one and a half to two hours.” (Hartmann, 1905, p.373) Hartmann considered the Spanish mantle to be a treatment that could be applied “longer than other packs because the whole body lies in a pleasant vapor.” (Hartmann, 1905, p.373) He applied these mantles for up to 3 hours.

The relaxation felt by those using the Spanish mantle induced sleep. “If the patient falls asleep, he should not be disturbed, but as soon as he wakes, he must be taken out of these wraps.” (Hartmann, 1905, p.373)

Variations

Benedict Lust recounts a story from Kneipp of a patient with heart weakness and hemorrhoids. Kneipp had prescribed the Spanish mantle 1 or 2 times a week. So impressed was the man with the results, that he adopted the Spanish mantle as his nightly ritual. Lust writes, “[The man] puts it on when he goes to bed and takes it off when awakening during the night or in the morning. To make the help of others unnecessary, he has a second Spanish mantle made of wool which he puts over the wet linen one.” (Lust, 1900, p.36) This is an ingenious method to simplify the use of the Spanish mantle.

The temperature of the water used was





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generally cold; however, for “those who are afraid of cold water, weak or aged people or those of poor blood may dip the mantle into hot water.” (Lust, 1900, p.36) Kneipp used hot herbal decoctions to enhance the healing potential of his compresses and wraps. For example, “in cases of gout [or kidney stones], the Spanish mantle may be dipped into a decoction of hay flowers, oat straw or pine sprigs.” (Lust, 1900, p.37) Hartmann used pine or fir branches prepared into a decoction that was especially indicated for gout. He emphasized that this should be applied as hot as possible. (Hartmann, 1905, p.373)

The Proof Is In The Laundry

Those who have implemented constitutional hydrotherapy within their practice have certainly witnessed the power of hydrotherapy in the laundry. White towels are often discolored yellow after the constitutional hydrotherapy treatments, due to the amount of excretions from the body. Such was the case with the Spanish mantle. “Father Kneipp experienced cases in which white linen of the mantle seemed to be dyed yellow.” (Lust, 1900, p.37)

Ailments

The water applications that used compresses and wet sheets were valued for their ability to draw out of the body unwanted toxins and morbid matter. “[The Spanish mantle] is an excellent remedy for gout, mucous, and typhus fever.” (Lust, 1903, p.318) Hartmann used this water wrap for obesity to help lose weight, and for fever and pulmonary inflammation. He also found the Spanish mantle “excellent in the early stages of typhoid fever.” (Hartmann, 1905, p.374)

Loss Of Voice

The Spanish mantle was often used to complement local treatments. A case illustrating the use of the mantle was presented by Lust. “A priest lost his voice and consulted the most renowned physicians for five years. He inhaled much, he had the parotid glands cut, all in vain.” (Lust, 1900, p.154) He turned to hydrotherapy and regained his voice within 6 months. The protocol prescribed for the priest was as follows:

The patient took in the week: a head-vapor and a foot-vapor, an upper and a lower gush. To contract the bloated parts of the body, he descended four times weekly into the cold water (to the arm-pits) remaining in it for one minute during which time he vigorously washed his upper body. He also took the Spanish mantle once a week. After four weeks the applications were reduced to one upper and one lower gush and one half-bath weekly. (Lust, 1900, p.154)

Lust reports, “Our gentleman’s voice was restored to its former strength.” (Lust, 1900, p.154)

Rheumatism

Rheumatism was also well suited to warm Spanish mantles that were combined with various other water applications. “A warm Spanish mantle, therefore, and head and foot steam-baths, but by no means too many applications, or in too quick succession, for such a patient,

White towels are often discolored yellow after the constitutional hydrotherapy treatments, due to the amount of excretions from the body. Such was the case with the Spanish mantle.

already weakened as he will have been by previous suffering, cannot have any great reserve of vital force, and the consideration of that fact must enter into the doctor’s calculations.” (Lust, 1900, p.150) A general rule of thumb regarding the use of any warm water application was to conclude with a cold water treatment, such as an affusion of the upper or lower body or a knee gush. The early Hydropaths stressed that during any treatment protocol, care must be taken to not overdo water treatments. For example, only 1 cold procedure was allowed in a day.

Boils

In the treatment of boils, a Spanish mantle pack could be used every second day; and in rotation, in addition to the Spanish mantle, a half-bath one day, and a whole washing the next. (Lust, 1900, p.173) After the Spanish mantle, a cold water application would follow to complete the treatment.

Stroke or Apoplexy

Lust recounts a case of a pastor stricken by a stroke:

One hand, one foot, one whole side of his body was totally paralyzed, voice and consciousness were also gone. Remedies were applied for several days, but without success. The physician declared that the one side would remain paralyzed as it was, and that a second stroke was likely to follow the first and put an end to the poor gentleman’s life. (Lust, 1901, p.77)

Treatment began with a series of cold and warm washings and vapor baths for the first 2 weeks. By the third day, the paralyzed limbs showed signs of sensation and hope. The next 3 weeks followed with more water therapies. “The cure was completed by upper and lower gushes applied alternately with the Spanish mantle. It was indeed no easy work, but the gentleman recovered his former health insomuch as to be able to say Mass daily, and to sing it occasionally, to visit the sick, and to attend to his correspondence.” (Lust, 1901, p.77) This case illustrates to us that numerous hydrotherapies were used and the Spanish mantle was best to finish the case.

Diphtheria

Dr Theodore Jacquemin recommended the Spanish mantle for diphtheria for the purpose of inducing sudorific effects. Father Kneipp, who had treated many

infectious diseases such as diphtheria, knew very well that using vigorous water applications for the sole purpose of increasing perspiration was salutary and essential for the complete cure. He continues, “In each individual case, the physician has to order the special applications, be these packs around the throat, ablutions over the whole body or part of same, compresses of ice water, applications of *Foenum graecum* porridge, half bath, packs on the feet, Spanish mantle and so forth.” (Jacquemin, 1908, p.159)

Conclusion

As will appear in the next volume of the Hevert Collection, *Clinical Pearls in Naturopathic Medicine*, there are many cases

where the Spanish mantle provided relief and was curative. When the author reveals the logic of their clinical intervention, we are handed valuable tools to replicate. When these pearls are not given freely, it is up to us to re-discover and make use of them confidently. ▀



Sussanna Czeranko, ND, BBE, graduate of CCNM, is a licensed ND in Oregon. Sussanna has developed an extensive armamentarium of traditional nature-cure tools for her patients. A frequent presenter, she is especially interested in balneotherapy, botanical medicine, breathing and nutrition. As Curator of the Rare Books Collection at NUNM, she has completed *Hydrotherapy in Naturopathic Medicine*, the tenth book of the 12-book series in the Hevert Collection. The development of her new medical spa in Manitou Beach, Saskatchewan – the site of a magical, saline lake – is complete. Her next large project is to host doctors interested in celebrating and sharing the wealth of our traditions. Join her and others for the Inaugural “Finding Our Roots Again Retreat,” August 12-19, 2018. www.Manitouwaters.com

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Signifiers Among Us

How Professions Take Shape

DAVID J. SCHLEICH, PHD

The process of self-determination for any heterodox professional group is uphill, often with a cold wind. The owners of whatever orthodox market terrain is being challenged will not yield ground willingly. Their authority, influence, and income depend on stopping those wanting some of that turf. In this regard, the literature of professional formation shows that the dominant biomedicine profession, for example, has fiercely defended its control, sometimes even assimilating newcomers as a strategy. They have done this vociferously since the Carnegie Foundation's *Flexner Report* in 1910 shifted how medicine did business in North America.

Meanwhile, from its very inception in the early days of Benedict Lust in New York, the naturopathic profession has had a track record of professional formation that has been inconsistent and sometimes volatile. The mainstream allopathic medical profession has benefitted from how long it took the naturopathic doctors to get their process in order (that is, accredited programs and schools, regulatory legislation, the beginnings of scaling). The allopathic medical profession, most particularly through its voluntary association, the AMA, has pushed back hard for over a century on all other professions in the healthcare sector in America. Thus, such terms as "complementary" and "alternative" (complementary to what? Alternative to what?) In recent years as well, there are new terms which characterize this longstanding rivalry: "holistic," "functional," and "integrative." Adding to the fray, the early NDs themselves squabbled about the right signifiers to embrace and the most useful professional formation paths to take. Even today, some naturopathic doctors eschew primary-care status while others crave it.

In recent years something new is chipping away at the hegemony of biomedicine. Public and patient interest in a more holistic, patient-centered paradigm – a space long defended by naturopathic professionals – is gaining traction inter-professionally. For example, where at one time, not so long ago, the allopathic medical establishment dismissed the fundamental importance of nutrition in graduate medical education, there has been a ramping up of interest in Food As Medicine, championed forever by naturopathic doctors. As is the norm with dominant, orthodox bodies, the allopathic profession has begun to claim nutrition practice principles as their own. The naturopathic profession did not get it together soon enough to claim that ground. In that regard, for example, *Wheat Belly* and *Grain Brain* were not written by naturopathic doctors, but totally should have been.

In any professional formation trajectory, alongside the achievements which gave the allopaths, for example, control of the healthcare wheelhouse in the early years, the dominant group is ever alert to co-opt

such new opportunities. And, as is also the case concomitantly, the identity and priorities of the heterodox pretender are affected by what that group fights. Adding even more to the equation of change, teachers and clinicians within the dominant profession are already assimilating modalities and approaches in elements of our Therapeutic Order that were eschewed and even scorned until very recently. In any case, the entire, prolonged fuss and rattle of such tension will inevitably yield to the arrival of a better mousetrap in the market, and patients will be glad of it. Meanwhile, during the skirmishes, whoever owns the signifiers of that better mousetrap gets to hang on to the steering wheel and control the fob.

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Stethoscopes as Signifiers

Let us take a brief look at a few examples of well known signifiers in the medical profession, with the intention of identifying who owns them. There are social dimensions to professional formation that produce emblems of all sorts, such as insurance codes, rights of access to products, tests, and related health services, and wide-ranging branding messages which by default show up in the civil society. TV shows, deferential bureaucratic systems, and institutionalized stereotypes abound, and rarely are non-biomedicine professionals represented.

There was a time in the boomer era when getting admitted to a medical school, and thus to the prospect of a lucrative career in medicine, meant moving into the exclusive waiting room for the upper-income tax brackets. Certainly, this was true soon after Flexner. Less so, in our time. Nevertheless, a sizeable portion of the naturopathic profession yearns for such recognition and social closure, like a small river yearns for the sea even though there are mountains and plateaus and flood plains in the way.

Emerging out of this effort, on the part of the naturopathic profession to find a legitimate berth in civil society, have been

many powerful signifiers, some of which bring with them contrary imperatives. For example, there is something as basic as "protected title." There is the pervasive signifier of the stethoscope and the white coat. And there is the hugely more complex signifier of the control of structure and content in medical education. Let us begin with the latter to make this point more fully.

The Structure of Professional Education

As Schon (1987, 1995) pointed out over 3 decades ago, the naturopathic profession is no different than any other profession in the way it has structured the learning that prepares graduates of our programs

as consistent in such conversations is the reality that the naturopathic system, alongside biomedicine, is increasingly housed in institutions dedicated to academic inquiry and the epistemology, terminology, and discourse of biomedical science.

Thus, the signifiers of "the medicine" get mixed in with notions of science, evidence, and translational research. Where in that sea of emblems of professional medicine do the roots and traditions of naturopathic medicine reside or, more pointedly, survive? A parallel, urgent question arises: at what point does so-called traditional curriculum and clinical emphasis become more allopathic than naturopathic? And, added into the equation, who is to determine when that threshold has been crossed? Certainly, post-graduate programs must respond to state health authority scope and practice requirements (eg, parenteral therapies, vaccinations) at the very intersection of civil authority to practice, and essential medical content and skills negotiated into new legislation that expands the scope and responsibilities of NDs. And, just as we might want to reflect on how stethoscopes, signifiers of biomedicine chiefly, became part of our toolkit, so too we might want to ascertain how the well-trodden path of "technical rationality" referenced above became the de facto framework for our curriculum, despite the dilutions and bruising which that structure over time brings into the professional formation of our students.

Adding confusion and wobbles in timing for professional formation are the variations in scope, protected title, controlled acts, and oversight state by state and province by province. What an ND can do in North Dakota or Minnesota is different from what s/he can do in Vermont. What an ND can do in Ontario is different from what s/he can do in Nova Scotia or Quebec. The subject matter (content) of curriculum, when juxtaposed with the mainstream medical school's choices, is increasingly converging. As more states and provinces accept naturopathic doctors into the protected category of "primary care," compliance with content and skills show up that are more akin to the mainstream graduate medical education. The signifiers of such education include expansion of pharmacology and the reduction of time spent on, say, homeopathy, hydrotherapy, and lifestyle counseling. Groups such as NMI (Naturopathic Medicine Institute) emerge to report these changes in curriculum structure and announce a mandate to keep the traditions of the medicine alive. Students themselves develop learning opportunities with such recurrent events as "the Gathering" and the various "Revitalization" retreats which have occurred at NUNM, SCNM, Bastyr, and BINM for a number of years now.

Graduate Medical Education is a Status Signifier

Another highly valued signifier of

for entry to practice and the pathways for new content to translate into that formal preparation process. First, there are the *basic sciences* of a discipline; then the *applied sciences*; and, finally, a *supervised practicum* of some sort. Everything tucked and zipped tight in a tri-partite framework. Of course, there are abundant variations, depending on the profession or the discipline, manifesting in terms of time spent, assessment, civil authority licensing, methods of ongoing certification or registration, cost, and placement. Within that framework of what Donald Schon called "technical rationality" curriculum, there are also delivery standards that take hold and persist, often for long periods.

Naturopathic Medicine is a Medical System, Not a Specialty

The teachers and practitioners of naturopathic medicine – a heterodox medical system in a healthcare terrain dominated by allopathic or biomedicine since the era of Abraham Flexner – use the term "the medicine" to describe what they are loyal to. They also invariably describe their system of naturopathy to be homogenous, rather than a field of study populated by many disciplines. Not

professional formation in medicine (also evoked as a standard for medical training quality) is placement in a residency program after graduation. We have adopted that path, in parallel with its evolution and refinement in the allopathic sector. The contemporary model of naturopathic medical education has embraced a widely understood signifier of excellence in medical preparation, contemplated by Schon in his label, “practicum training” in Tier-3 of his model.

Our residency training is self-funded and tiny. There aren't enough residency opportunities to go around, alas, since the profession is excluded from participation in the Medicare-financed National Resident Matching Program (NRMP), whose mathematical algorithm is configured to place applicants into residency and fellowship positions. Access to “the Match” rejects any but the biomedicine graduate. Only students from LCME-accredited allopathic schools (MD or DO), and some US citizen and some non-US citizens from international medical schools accredited by the Liaison Committee on Medical Education (LCME), need apply. We go our own way in parallel, smaller, unrecognized paths. Our grads do not do rotations in hospitals that benefit from public money. If they did, the signifier of that accomplishment would be hugely valuable in professional formation efforts.

Peripheral Signifiers We Love and Use

There are also *peripheral signifiers* which abound in medicine. For example, we adopted the caduceus and the stethoscope,

constituent elements in the iconography of the naturopathic physician in North America. Some elders in the profession contend, though, that in comparison to the white coat, the latter emblem, especially when NDs choreograph their publicity photos with one draped around their neck against a backdrop of the white coat, is the worst lame emblem of what the naturopathic medical profession is doing to itself. In naturopathic medical education, such emblematic features can be pernicious at the same time as they are hugely valuable by virtue of their instrumentality. The question is: whose signifier is it?

Let's take a moment to check out how the stethoscope got to us. It is inherently emblematic of the allopathic physician, but has found its way into our clinical practice and into our branding too. There are very good reasons for both naturopathic and allopathic doctors to use a high-tech, bi-aural stethoscope to aid in the process of auscultation, important in a doctor's inclusion or exclusion of different pathological conditions, most particularly related to the circulatory, respiratory, and gastrointestinal systems. In 1816, Dr Rene Theophile Hyacinthe Laënnec introduced an early, simple wooden model to his colleagues in France. He later described it in “De L'auscultation Mediate” (Rougin, 2006) as very valuable for capturing audible data about patients, especially women, as this method was more reliable and socially appropriate than leaning an ear against the chest and back of the subject. This tool, which has also become an emblem, is not what is especially

troubling. Rather, there are systemic practices that are more evocative of what the naturopathic profession has assimilated over time and which, some would argue, are evidence that we are slowly risking becoming what we have fought all along.

Clearly, signifiers – whether they be huge and complex, or simpler and immediately functional – influence not only who patients think we are, but also who *we* think we are. As the pressure mounts during a time of declining matriculant pools, gradually increasing responsibility exists, alongside decreasing levels of supervision for our doctors in training, to gain competence as they move toward a later stage of unsupervised practice.

Whatever designs we affix to naturopathic medical education programs, whether it be toward a competency-based continuum along the entire path of the experience, or a more static, less expensive framework, as we direct our grads into nonhospital, ambulatory, and full clinic settings where the experiences are robust, we must take care with our signifiers, big and small. The emphasis we place on biological sciences, physical sciences, and pharmacology are already slamming our identifiers with ambiguity. Our graduates face the same terrain of chronicity as the allopathic graduates. As naturopathic medical educators build up curriculum that equips our grads to deal with disease prevention, health promotion, population health, chronic disease, addiction, how we present ourselves in the community, and our philosophical framework for healing, we can generate a few signifiers of our own through the form and content of our

curriculum. The literature of professional formation shows that naturopathic doctors were attuned to the social determinants of health long before their biomedicine colleagues. We don't want to lose that edge, the pride of that tradition, and the urgency of shaping signifiers of our own that the public can readily discern.

As the Buddhist principle attests, “When the student is ready, the teacher appears.” Our students are ready. Our teachers are ready. Incidentally, so too are social disruptors such as Lyft, an enterprise wanting to know to which providers to transport patients. Everything is up for grabs, it seems. ▀



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