



PHYSICIAN'S ROLE IN HEALTH & WELLNESS



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With

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What is Functional and Integrative Medicine?

- An integrated, **systems-based** understanding of pathophysiology
- Improved understanding of causality
 - Root-cause analysis
 - “Antecedents, Triggers and Mediators”
- Presenting **options** beyond medications and surgery
- Providing **lifestyle coaching** (which empowers the patient)

What further role could the physician play?

- Educator
- Coach
- Example/Inspiration

The Evidence Speaks for Itself

77%

of chronic disease is driven by lifestyle factors (WHO)

80%

of type 2 diabetes cases are preventable through diet & exercise

30-40%

reduction in all-cause mortality with Mediterranean diet adherence

\$3.7T

annual U.S. healthcare cost—most of it chronic disease

Yet lifestyle medicine remains underutilized in clinical practice.

NUTRITION AS MEDICINE

What the science says — and how to apply it in practice

Nutrition: The Most Powerful Drug We Have

Key Evidence

- The PREDIMED trial demonstrated that a **Mediterranean diet** supplemented with olive oil or nuts **reduced major cardiovascular events by ~30%** compared to a low-fat diet
- Anti-inflammatory dietary patterns reduce hs-CRP, IL-6, and TNF-alpha—key biomarkers of systemic inflammation
- Elimination of ultra-processed foods correlates with reduced depression, anxiety, cognitive decline, and metabolic syndrome

What to Tell Patients

- Whole foods over processed foods—always
- Prioritize colorful vegetables, quality protein, healthy fats, and fiber
- Minimize refined carbohydrates, seed oils, and added sugars
- A food-first approach addresses nutrient insufficiencies that medication cannot

Practical Clinical Application

- Ask 2 nutrition questions at every visit: “How many servings of vegetables do you eat daily?” and “How often do you eat ultra-processed foods?”
- Refer to a registered dietitian or nutritional therapist for deeper work

The Gut-Disease Connection

Gut Microbiome & Systemic Health

- The gut microbiome contains **~38 trillion microorganisms** influencing immunity, metabolism, neurotransmitter production, and inflammation
- **Dysbiosis** (microbial imbalance) is linked to: IBS, IBD, obesity, type 2 diabetes, depression, autoimmune disease, and cardiovascular disease
- **Leaky gut** (intestinal permeability) allows endotoxins to enter circulation, triggering systemic inflammation

What Drives Dysbiosis

- Antibiotics, NSAIDs, PPIs
- High sugar / low fiber diet
- Chronic stress (gut-brain axis)
- Environmental toxins

Therapeutic Targets

- Increase **dietary fiber**: 25-38g/day minimum
- **Fermented foods**: kimchi, kefir, sauerkraut, yogurt (live cultures)
- Targeted **probiotics**: Lactobacillus and Bifidobacterium strains for IBS, immune support
- **Prebiotic foods**: garlic, onion, leek, asparagus, green banana
- Reduce gut irritants: gluten (in sensitive patients), alcohol, food dyes

Clinical Pearl

Before prescribing a PPI long-term, consider a 30-day elimination diet trial and stool microbiome testing. The results often change the treatment plan.

MOVEMENT AS MEDICINE

Exercise is the most evidence-backed intervention in preventive medicine

Exercise: The Polypill That Costs Nothing

What the Research Shows

- Regular physical activity **reduces all-cause mortality by 30-35%** (Lancet, 2012)
- **VO2 max** correlates with **all-cause mortality**
- Exercise **improves insulin sensitivity more effectively than metformin** in pre-diabetic patients (NEJM Diabetes Prevention Program)
- Even **22 minutes/day** of moderate activity significantly reduces mortality risk

The 5 Principles of a Robust Exercise Program

- **Resistance training:** 2-3x/week builds strength, improves functional status, creates metabolically active muscle tissue
- **Zone 2 aerobic training:** Low-intensity sustained movement (walking, cycling) improves mitochondrial function and fat oxidation
- **Flexibility & mobility:** Reduces injury risk and supports healthy aging
- **Neuromuscular control:** Reduces injury risk and supports healthy aging
- **Mindfulness:** promotes body awareness

How to Prescribe Movement

- Understand the **stages of behavior change** and use **motivational interviewing** to assess readiness and remove barriers
- **Mutually determine** what the patient is willing to do
 - “The best exercise plan is the one the patient ***will actually do.***”
- **Injuries?** Consider referral to physical therapy

BOTANICALS & NUTRACEUTICALS

Evidence-informed use of herbs and supplements in clinical practice

High-Impact Botanicals & Nutraceuticals with Strong Clinical Evidence

Cardiovascular & Metabolic

- **Berberine:** activates AMPK pathway; lowers HbA1c and LDL comparably to metformin in some trials; helps reverse atherosclerosis
- **Omega-3 fatty acids (EPA/DHA):** Reduces triglycerides, blood pressure, endothelial inflammation, sudden cardiac death (stabilizes cardiac myocytes); 2-4g/day for cardiovascular protection
- **Magnesium glycinate:** reduces blood pressure and PVCs; mitochondrial energy production; insulin sensitivity; sleep
- **Coenzyme Q10:** Essential for mitochondrial energy production; depleted by statins

Immune & Inflammation

- **Curcumin (with piperine):** NF-kB inhibitor; anti-inflammatory comparable to NSAIDs without GI toxicity; Anti-cancer
- **Vitamin D3 + K2:** Immune modulation, bone health, anti-cancer; target 50-70 ng/mL
- **Elderberry (Sambucus nigra):** Antiviral; reduces influenza duration;

Adaptogenic & Neurological

- **Ashwagandha (Withania somnifera):** Reduces cortisol by 27% in clinical trials; supports HPA axis
- **Lion's Mane mushroom:** Stimulates Nerve Growth Factor (NGF); emerging evidence for cognitive support
- **Rhodiola rosea:** Adaptogen for mental fatigue and stress resilience

Gut & Detoxification

- **Saccharomyces boulardii:** Probiotic yeast; evidence for C. diff prevention and diarrhea-predominant IBS
- **Glutamine:** Intestinal mucosal repair; supports gut barrier integrity
- **Milk thistle (Silymarin):** Hepatoprotective; supports liver detoxification pathways

Botanicals & Nutraceuticals: Science, Not Superstition

Addressing Common Physician Concerns

- **“There’s no evidence”** — There is. Over 70,000 peer-reviewed studies on botanicals and nutraceuticals exist in PubMed. The challenge is selective familiarity.
- **“They’re unregulated”** — Quality varies. We teach physicians to recommend evidence-based brands and third-party tested products (USP, NSF, ConsumerLab).
- **“Drug interactions”** — Real concern. But this is precisely why physician-guided integrative care is safer than patients self-treating. Use drug-herb interaction checkers (**Natural Medicines Database, Epocrates**)

Key Principle

The goal is not to replace pharmaceuticals—it is to reduce the total burden on the body, address root causes, and use the most effective tool for the individual patient.

CASE STUDIES

Real patients. Real healing. Evidence of what's possible.

Opportunities to Begin Your Journey: Case Studies

Chronic fatigue syndrome. Standard workup reveals no identifiable cause. Patient frustrated. What could be a root cause?

- Viral reactivation ?
- Perimenopause?
- Thyroid and adrenal function?
 - TSH, Free T3, Free T4, antibodies
 - AM cortisol free and total, ACTH, DHEA-S, 24-hour urine cortisol
- Oxidative stress burden?
 - Oxidized LDL (Labcorp 123023)
 - Glutathione (Labcorp 007700)
 - Myeloperoxidase (Labcorp 123006)

Opportunities to Begin Your Journey: Case Studies

Chronic fatigue syndrome, continued...

- **Nutrient deficiency?**

- CoQ10 (Labcorp 120251)
- Vit D (Labcorp 081950)
- RBC-magnesium (Labcorp 080283)
- B-vitamin status: Methylmalonic Acid (706961), RBC-folate (002014), Homocysteine (706994)

- **Mitochondrial function?**

- Lactate / Pyruvate ratio (normal is < 20)
- Lactic Acid (Labcorp 004770) and Pyruvic acid (Labcorp 004788)

Opportunities to Begin Your Journey: Case Studies

Elderly patient entering cold and flu season. Doesn't want vaccinations. "Is there anything I can do to strengthen my immune system naturally?"

- Improve their sleep
- Melatonin
- Daily walking program
- Test and replete: Vitamin C (Labcorp 001805), RBC-Zinc (Labcorp 070029), Selenium (Labcorp 716910)
- Mushroom extracts (ABM, Lion's Mane, Turkey Tail)

Opportunities to Begin Your Journey: Case Studies

Severe polyarthralgia. + CRP, ESR. Morning stiffness. + Autoimmunity markers. Problem: You can't get the patient into Rheumatology for 6 months.

- Hydroxychloroquine
- AIP diet (Auto Immune Protocol diet)
- Reduce autoimmunity: Vitamin D, DHEA, CBD
- Reduce inflammation: Turmeric, Omega 3s, Boswellia, Butyrate (heal GI lining)
- LDN (Low Dose Naltrexone)

Opportunities to Begin Your Journey: Case Studies

Depressed patient who has failed multiple medications. Is there anything *physiologically* that could be contributing?

- Thyroid
- Vitamin D
- Improve gut microbiome (probiotics, fermented foods)
- Screen toxins (mold, candida, heavy metals, glyphosates)
- Test genetics relating to neurotransmitter function (MTHFR, MTRR, COMT)
- Assess functional methylation status (S_AMe/S_AH ratio)
- Oxidative stress burden?
 - Oxidized LDL (Labcorp 123023)
 - Glutathione (Labcorp 007700)
 - Myeloperoxidase (Labcorp 123006)

Opportunities to Begin Your Journey: Case Studies

Patient has dyslipidemia and coronary artery disease. Doesn't want to start a statin. Terrible dietary habits. Doesn't exercise. Where to begin?

- **Mediterranean diet** and **Intermittent fasting**
- **Walking or Yoga** (30 mins x 5 days a week)
- **Omega-3s** (2-4 grams a day) [lower triglycerides, lowers BP, reduces risk of cardiac arrest by stabilizing cardiac myocytes]
- **Nattokinase** (12,000 units a day)[lowers triglycerides, lowers LDL, raises HDL, reverses atherosclerosis, reduces BP]
- **Arginine** (5 grams BID) [promotes endothelial nitric oxide production]
- Advanced options:
 - **Ornish** Lifestyle Program or **Esselstyn** Program
 - **Berberine** [lowers LDL, reverses atherosclerosis]
 - **Aged garlic** [reverses atherosclerosis]

Opportunities to Begin Your Journey: Case Studies

Patient is on 3 medications for hypertension. BP typically 140s/90s. Normal kidney function.
“I want to get off some of these medications.”

- **Sauna** (20-30 mins, 5x a week)
- **Arginine** (5 grams BID) [promotes endothelial nitric oxide synthesis]
- **Beet root** juice or powder [promotes endothelial nitric oxide synthesis]
- **Magnesium Glycinate** (500 mg a day)

Opportunities to Begin Your Journey: Case Studies

Obese patient with metabolic syndrome. Standard American Diet. No exercise. On Metformin.
Where to begin?

- **Metabolic testing**
 - Fasting Insulin and Leptin
 - Myeloperoxidase
- Risk-stratification: **coronary artery CT scan with** calcium scoring
- Diet: **Intermittent fasting** + Reduce **processed foods and sugar** + 30 grams **fiber**
- **“Move your body every day for 20 mins”** (walking, mini trampoline, water aerobics)
- **Berberine** (1,500 mg a day) [AmpK activator; results similar to Metformin; lowers LDL; reverses atherosclerosis; boosts immunity]

Opportunities to Begin Your Journey: Case Studies

Persistent stomach pains with meals. Negative H. Pylori. Endoscopy shows mild gastritis. Off NSAIDS. What options exist besides a proton pump inhibitor?

- **Aloe vera juice** (8 oz 1-2x a day) w/ **blended cucumber** [heals GI lining, reduces bloating]
- **Ginger** [prokinetic]
- **Fennel seeds or fennel tea**
- **DGL gummies** (Deglycyrrhizinated licorice) [promotes gastric mucous production]
- **Food intolerance testing** (IgG) or **AIP diet** (Auto Immune Protocol diet)

Opportunities to Begin Your Journey: Case Studies

Bloating, cramping and gassy after meals. Occasional loose stools. Normal endoscopy and colonoscopy. Diagnosed as “Irritable Bowel Syndrome.” “I want to feel better and get to the root cause of the problem.”

- **Digestive Enzymes** (1-2 with each meal)
- **Food intolerance testing (IgG) or AIP diet** (Auto Immune Protocol diet)
- **Asses GI permeability**
- **Asses GI inflammation**
- **Test for dysbiosis**
- **“GI-MAP” stool test** by Diagnostic Solutions Lab

Opportunities to Begin Your Journey: Case Studies

Female, 34. Left-sided Ulcerative Colitis. On Mesalamine with incomplete response. 4-6 loose stools/day, blood, nocturnal urgency. Gastroenterologist considering biologics.

- **GI-MAP** stool test [depleted *F. prausnitzii*, Akkermansia, pathogenic *E. coli* overgrowth, calprotectin 890]
- Full **nutrient panel** [Vitamin D 14, zinc critically low, ferritin 7, omega-3 index 2.8%]
- **Food sensitivity testing (IgG)** → eliminated gluten, dairy, corn, soy, alcohol
- Modified **SCD/IBD-AID diet + bone broth** daily [mucosal repair, reduce inflammation]
- **Zinc carnosine** 75mg 2x/day [#1 evidenced supplement for intestinal mucosal healing]
- **L-Glutamine** 10g/day [enterocyte repair, seals leaky gut]
- **Phosphatidylcholine** 2-4g/day [colonic mucus layer is 70% PC — UC patients are deficient]

Opportunities to Begin Your Journey: Case Studies

Ulcerative Colitis, continued...

- **Curcumin BCM-95** 2g/day. [RCT: curcumin + mesalamine outperforms mesalamine alone]
- **Boswellia serrata** 300mg 3x/day. [5-LOX inhibitor — also resolved joint pain]
- **Omega-3** EPA/DHA 4g/day [blocks same inflammatory pathway as biologics, different mechanism]
- Targeted **probiotics**: L. rhamnosus GG + B. infantis + S. boulardii [most IBD-evidenced strains]
- Sodium **butyrate enema** [delivers colonocyte fuel directly to inflamed left-sided colon]
- Aggressive **repletion: Vitamin D, zinc, iron bisglycinate*** (NOT ferrous sulfate — worsens GI inflammation)
- MBSR + gut-directed **hypnotherapy** (stress triggers flares via CRH-mediated mast cell activation)
- Mesalamine maintained. GI physician informed throughout.

Outcome:

12 months: Calprotectin 890 → 124. Mayo Score 6 → 1. Blood-free 8 months. Mucosal healing confirmed. Biologic avoided.

Bringing It Home: Your Next Steps

Top 6 Steps To Take if You are Ready to Move Forward:

1) Download the Natural Medicines database (evidence-based supplement guidance)

2) Pick a patient who is not progressing and ask some questions:

- Have we gotten to the **root cause** of this problem?
- Could this problem be addressed via **dietary changes**?
- Or a proper **exercise** program?
- Are there **nutritional supplements** that have a role?
- Is there a **psychological component** that is not being addressed?
- Are there **other healthcare practitioners** who may have a role (e.g. acupuncturist, chiropractor)?

3) Buy a book

- Textbook of Natural Medicine or Clinician's Handbook of Natural Medicine

Top 6 Steps To Take if You are Ready to Move Forward:

4) Enroll in a CME or Further Education

- Institute for Functional Medicine
- American-Academy of Anti-Aging Medicine
- Priority Health Academy: Founded by Dr. JP Saleeby

5) Explore cutting-edge, cash-based functional testing

- RUPA health or Evexia

6) Begin Building Your Referral Network

- Naturopathic doctor (ND) for root-cause workup
- Registered dietitian
- Certified functional medicine practitioner
- Clinical herbalist
- Health coach

CME Summary: Key Takeaways

Learning Objectives Achieved

- **Chronic disease is largely lifestyle-driven**—and largely preventable with the right tools
- **Nutrition, movement, sleep, and stress management** are evidence-based, powerful clinical interventions
- **Botanicals and nutraceuticals** have strong evidence in targeted applications and are safer when physician-guided
- **Integrative and allopathic medicine are not in opposition**—they are complementary tools for the same goal: patient healing
- Case studies demonstrate **meaningful clinical outcomes** achievable without—or with reduced—pharmaceutical intervention

CME Summary: Key Takeaways

Scan to Access Your CME Clinical Reference Document

This QR code links directly to a comprehensive clinical reference PDF prepared by Dr. Kristina Carman and Dr. Michael Turner as a companion to this session. Designed for CME learners, it includes:

- **Four in-depth integrative case studies** — Pre-Diabetes Reversal, Hashimoto's Thyroiditis Root-Cause Resolution, Treatment-Resistant Depression via the Gut-Brain-Nutrient Axis, and Ulcerative Colitis Mucosal Healing — each with full diagnostic workups, GI-MAP and OAT findings, targeted supplement protocols with dosing and evidence, and 12-month outcome data
- **Complete lab reference tables** covering functional testing panels, nutrient levels, and clinical interpretation
- **Supplement evidence tables** with mechanisms, dosing, and key citations for every recommendation discussed in this session
- **Five CME Learning Objectives** mapped to ACGME competency domains, plus a post-activity assessment guide for credit documentation
- **Key references and evidence base** across all four cases including RCTs, meta-analyses, and Cochrane reviews

This document is intended as a clinical take-home resource — something you can reference when you encounter a patient tomorrow whose presentation echoes one of these cases. Save it to your device, share it with colleagues, or return to it as you begin incorporating integrative tools into your own practice.

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Thank you

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