Is functional nutrition ready for prime time?

Sort of disclosures

• DIFM member, but not practicing functional dietitian nutritionist
• Chair Elect, Research DPG, but do employ anecdotal evidence
• Thinking out loud

Hmm. Should I also disclose that I had whisky and chocolate cake last for dinner?
4 things about IFN

• What is functional nutrition?
• What makes it unique?
• What’s the best available evidence?
• What are some business considerations?

Cassie’s story

Why I kissed my dietitian license goodbye
Idaho Board of Medicine

54-3502A. DIETETIC PRACTICE. (1) Dietetic practice focuses on food and nutrition and related services developed and provided by dietitians to protect the public, enhance the health and well-being of patients/clients, and deliver quality products, programs and services, and medical nutrition therapy. Dietitians practice across varied settings, including

(9) "Medical nutrition therapy" or "MNT" means an evidence-based application of the nutrition care process. The provision of MNT to a patient/client may include one (1) or more of the following: nutrition assessment or reassessment, nutrition diagnosis, and nutrition intervention for the prevention, delay or management of diseases or conditions.

54-3510. GROUNDS FOR DISCIPLINE. The board, in accordance with the
(5) Engaged in the practice of dietetics in a manner that does not meet the generally accepted standards for the practice of dietetics within the state of Idaho;

LIABILITY

- Not all insurance companies cover the full scope of functional nutrition services
- For example, Mercer
  - Not cover selling or distribution of products
  - Thus, no liability for sale of vitamin/herbal supplements or other products
Given licensure and liability considerations

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LASTING HEALTH COMES FROM THE INTERACTION OF OUR GENES WITH OUR LIFESTYLE AND ENVIRONMENT. PERSONALIZING THIS CONNECTION IS THE FUTURE.

– JEFFREY BLAND, PHD
President, Personalized Lifestyle Medicine Institute
Founder, The Institute for Functional Medicine
N = n = 1

**Disease**
- Diabetes
- Heart disease
- Obesity
- Autoimmune diseases

**Root causes**
- Imbalances (immunity, inflammation, hormonal, digestion, structural)
- Toxic chemical exposure
- Mitochondrial dysfunction
We do not know everything, but we do have the birthing of a new paradigm. We are beginning to understand the impact of genes and how an individual interacts with their environment may facilitate illness."

Integrative & functional

- Whole person
- Root cause of disease
- Conventional treatments
- Functional interventions
- Prevention and wellness

- Unique “story”
- Unique environment, lifestyle
- Unique genetic makeup
- Unique biochemistry
- Unique interactions
Core philosophy centers around a **holistic, personalized** approach to health and healing.

**What does this person REQUIRE to improve function in order to support health and healing?**

**WHOLE FOODS**  
**SUPPLEMENTS**  
**MIND BODY**

**What does the person need to REMOVE to improve function in order to support health and healing?**

- Stress
- Toxins
- Allergens
- Inflammation
**Assessing root causes**

**IFMNT Radial**

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**Unique features of IFN NCP**

| ASSESSMENT          | • IFMNT radial  
|                     | • Nutrigenomics  
|                     | • Functional lab work  
|                     | • Exposures to toxins  |
| DIAGNOSIS          | • IFMNT data in PES statement  
|                     | • Identifies root of nutritional problem  |
| INTERVENTION       | • Liver detoxification  
|                     | • Vitamin supplementation  
|                     | • Mind-body therapies  |
| MONITORING & EVALUATION | • Reassess IFN data  
|                     | • Consider core imbalances |
Given this brief overview of the practice is functional nutrition ready for prime time?

The debate

Galen 130–201 A.D.
22 volumes on anatomy
Never dissected a human corpse

Vesalius 1514–1564
Hmm...
Human anatomy ≠ monkeys
Unintentional fuel

LOWEST SCORES IN EVALUATION
- Misjudging the quality of info used to support interventions
- Lack of objective assessments and interventions

DIFM
Best Available Evidence Decision Tool

Best available evidence

Evidence Analysis Library

Evidence-based nutrition care guidelines
Academy systematic reviews
Other systematic reviews
Narrative reviews
RCTs
Environmental toxins
best available evidence

Environmental toxins and risk of disease

1. Evidence-based nutrition care guidelines?  **No**
2. Are there Academy published systematic review?  **No**
3. Are there other systematic reviews?  **Yes—multiple**
### Systematic review #1


Environmental toxic metal contaminants and risk of cardiovascular disease

- 37 studies (medium/high quality)
- Observational, no RCTs
- 350,000 unique participants
- Arsenic, lead, cadmium, and copper exposure ↑ risk CVD, CHD
- Mercury no CVD risk

### Systematic review #2


A comprehensive evaluation of the association between ambient air pollution and adverse health outcomes of major organ systems

- 76 studies
- No RCTs, but large cohort studies around the world
- Association between ambient air pollution and health risks
- Cancers, respiratory, neurologic, psychiatric, and CV disease
Systematic review #3


A systematic review on the adverse health effects of di-2-ethylhexyl phthalate

- 45 studies
- 69,486 participants
- High uBPA associated with ↑ risk for DM, obesity, and HTN
- Lots of confounding variable, no RCTs

Precautionary principle of environmental health

When an activity raises threats of harm to the environment or human health, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically.
Given the focus on reducing exposures to toxins is functional nutrition ready for prime time?

Liver detoxification

- **Phase I (Cytochrome P450 Enzymes):**
  - Oxidation
  - Reduction
  - Hydrolysis
  - Hydration
  - Dehalogenation

- **Phase II (Conjugation Pathways):**
  - Sulfation
  - Glucuronidation
  - Glutathione Conjugation
  - Amino Acid Conjugation
  - Acetylation
  - Methylation

**Nutrients Needed:**
- **Toxins:** Vitamin B2, B3, B6, B12, Folic Acid, Glutathione, Flavonoids
- **Waste:** Vitamin B5, B12, Glutamine, Folic Acid, Choline

Eliminated Via:
- Urine
- Bile
- Stool
Liver detoxification
best available evidence

Can diet modulate liver detoxification?

- Academy systematic reviews No
- Other systematic reviews No
- Narrative review Yes

Findings

- Evidence supported by in vivo and animal studies
- Some human studies—observational, clinical trials
- Isolated nutrients and foods
- Confounding variables

Clinical evidence of effects from cruciferous vegetables, allium vegetables, apiaceous vegetables, grapefruit, resveratrol, and fish oil

Diet devoid fruits/veggies vs. 10 servings per day of a combination of cruciferous vegetables, soy foods, and citrus fruits—no difference
### Science is in its infancy

“It is best to take **precaution** in firmly advocating foods or food-based nutrients that only have **cell or animal data** as support.”

“It is best to **rely on the clinical [human] studies**.”

“In several instances, certain foods exhibited a particular activity on an enzyme, while, at higher doses, they had another, opposite effect.”

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### Supplements to support detoxification

“Some **caution is recommended**

...due to the **limitations of current research**,

as well as indications that many nutrients exert

biphasic, does-dependent effects

and that genetic polymorphisms may alter outcomes”

“A **whole-foods approach** may, therefore, be prudent”
Given the premise that diet can modulate liver detoxification is functional nutrition ready for prime time?

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