



**Association of Correctional Food Service
Affiliates and the International Association of
Correctional Food Service Professionals**

IMPLEMENTING CULINARY MEDICINE INTO THE CORRECTION FOOD SERVICE SYSTEM

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TODAY'S ADVENTURE

- State at least three critical micronutrients directly involved with cognitive function and their contribution to negative mental health outcomes
- Describe the subjective hedonic power of fostering an emotional attachment to food.
- Create at least two new menu ideas that support psychiatric stabilization and foster subjective accountability for management of chronic disease.



CLARIFYING MALNUTRITION

Without adequate digestion and extraction of SIX *essential nutrients*, **malnutrition** will result.

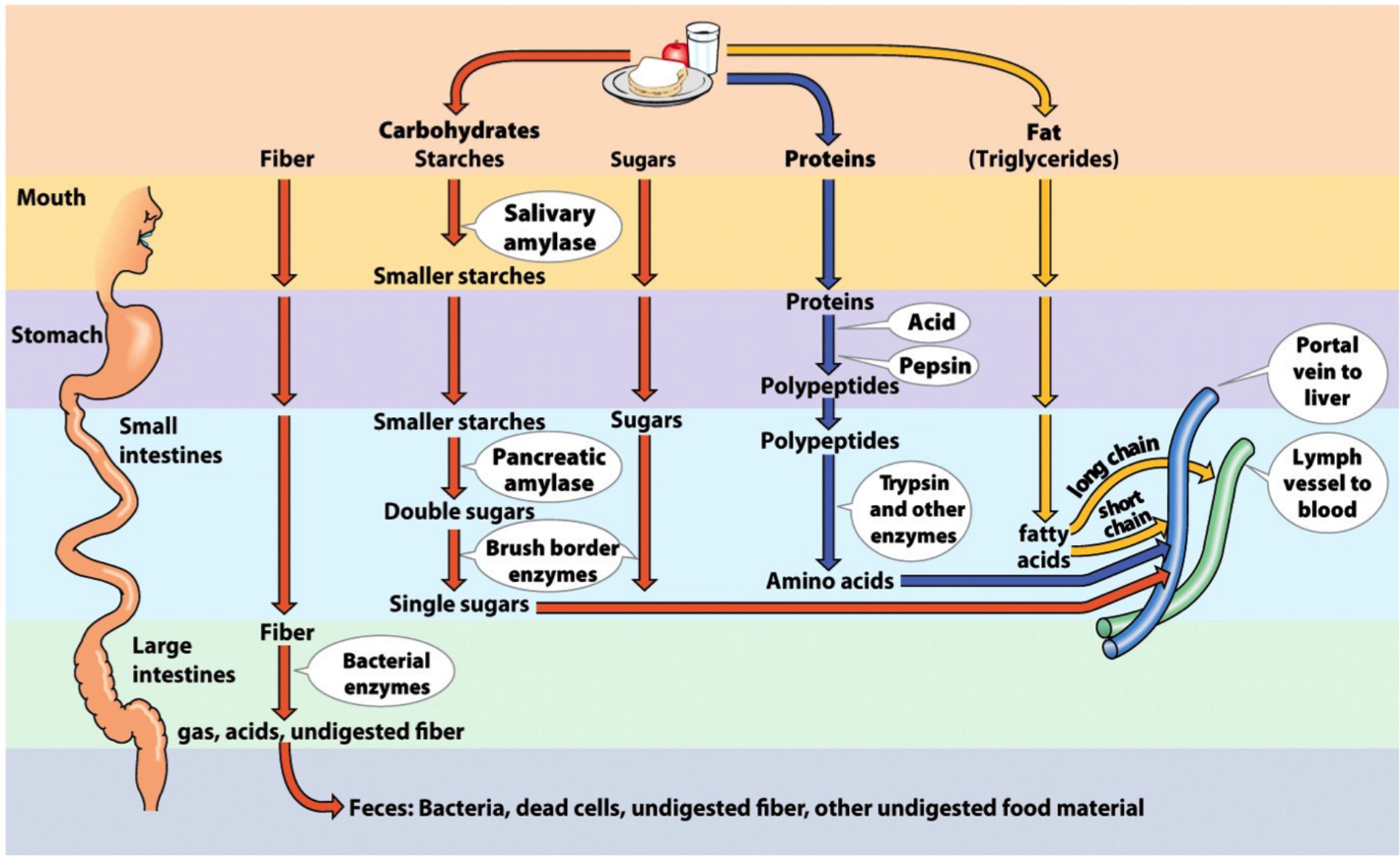
Carbohydrates, Proteins, Lipids, Vitamins, Minerals, and Water

*Faulty nutrition due to inadequate or unbalanced intake of nutrients or their impaired assimilation or utilization**



***Weight is not mentioned in this definition**

*SOURCE: Webster's Medical Dictionary



HUMAN FOOD PATTERNS OF DYSFUNCTION

1. Erratic pattern/time of eating; hepatic and cognitive stress

- **HINT: Not about calories! Humans are too complex of a biological system.**

2. Lack of variety in diet creates gut microbiome dysbiosis

3. Inadequate hydration

- Impaired hydrolysis and metabolism of glucose
- Activates sustained gluconeogenesis (GNG) pathways and utilization of amino acids and fatty acids for energy
- Cerebral atrophy and demyelination



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What Is Culinary Medicine and What Does It Do?

John La Puma, MD, FACP¹

Introduction

OVER THE PAST 35 YEARS, a new enthusiasm has emerged about the relationship of food, eating, and cooking to personal health and wellness.¹ Though there are few peer-reviewed publications, grant monies, books, or biomedical journals entitled “culinary medicine,” there are thousands of peer-reviewed publications, found mainly in mainstream medical journals that form its published research base. How

tempt to empower the patient to care for herself or himself safely, effectively, and happily with food and beverage as a primary care technique.

Development

Five reasons for the rise in interest in culinary medicine are:

- Flourishing interest in eating out away from home and in food and cooking in popular entertainment media, as

WHAT IS CULINARY MEDICINE?



New evidence-based field in medicine that blends the art of food and cooking with the science of medicine (La Puma, 2016)



Statement of recommendation to view the biochemical aspects of food as a creative and artistic manifestation of desire (Terry SI and Hanchard B. BMJ. 1979)



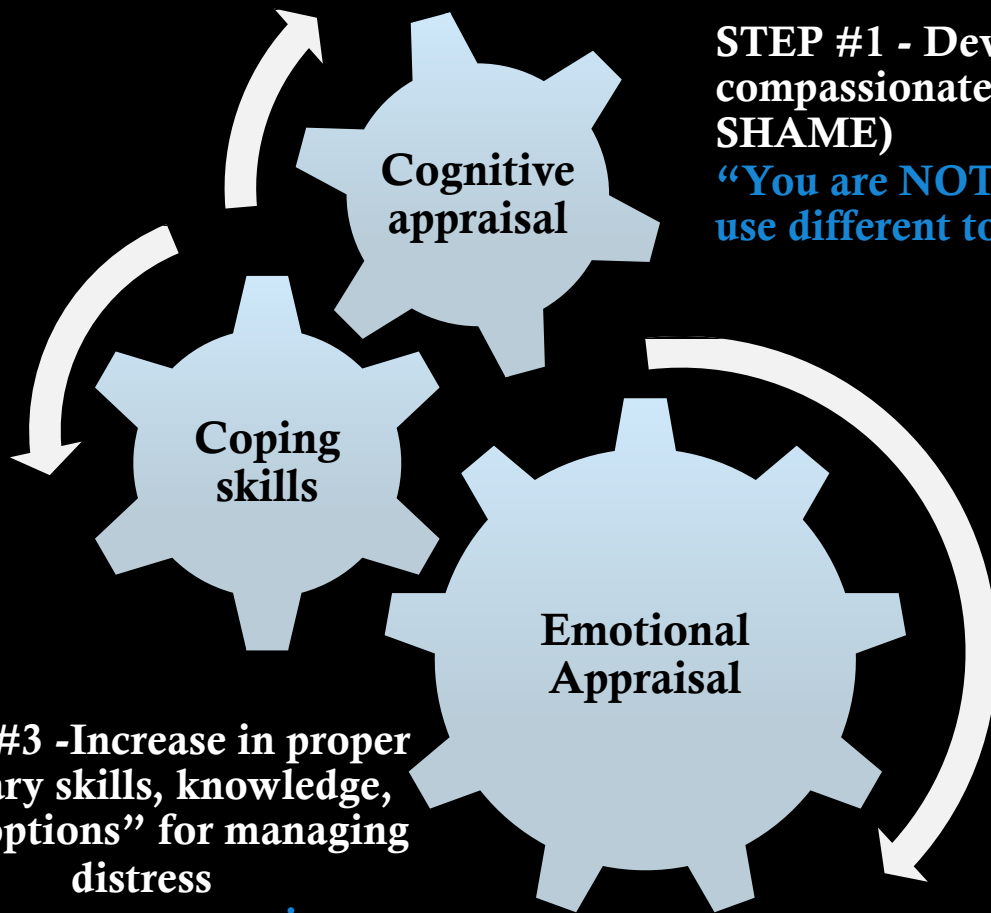
Medical School training is beginning to incorporate (variable level of madidate) culinary medicine techniques – Being lead by Dietitians while using interdisciplinary team members (Eisenberg DM et al; JAMA Intern Med, 2013)

Table 1. Educational objectives and future directions for the culinary medicine elective

Educational objectives	Future directions
<ul style="list-style-type: none"> • Describe the components of a healthy lifestyle • Educate students on creating budget-friendly and nutritious meals • Explore basic culinary skills and strategic meal planning options • Discuss various disorders and the dietary needs that accompany them • Describe strategies on educating patients with different nutritional requirements 	<ul style="list-style-type: none"> • Apply learned skills in a practice objective structured clinical examination • Work in interprofessional teams to promote patient-centered problem solving • Examine principles of nutrition throughout the life cycle • Address micronutrient aspects of nutrition with a focus on vitamins (water-soluble, fat-soluble, etc.) • Discuss the barriers to maintaining a healthy diet

- First Culinary Medicine course at SUNY-Upstate (2003)
- Harvard ‘Health Kitchens, Healthy Lives’ Postgraduate Training (2007)
- First Culinary Medicine Center in US Medical School (Tulane – 2013)
- NOW - Medical Schools offer “Culinary Medicine” as part of their RDN-lead MD/DO medical training programs in United States

PRO	CON
Patient-centered treatment	Additional time commitment
Transformational value of food (medicinal)	Risk of eating disorders and dissociation from triggers
Psychosocial and attachment development to cultural and spiritual aspects of food	Food and Occupational Safety training mandatory



STEP #1 - Development of self-validation for a compassionate approach to growth (i.e., reduction of SHAME)

“You are NOT a problem. We need to learn new skills and use different tools.”

STEP # 2 - Personal relationship with food; family history; cultural preferences/norms

“Let’s talk about the reality of your relationship with food and your body...”

STEP #3 -Increase in proper culinary skills, knowledge, and “options” for managing distress

“How are you coping differently now?”

YOUR BRAIN AND FOOD



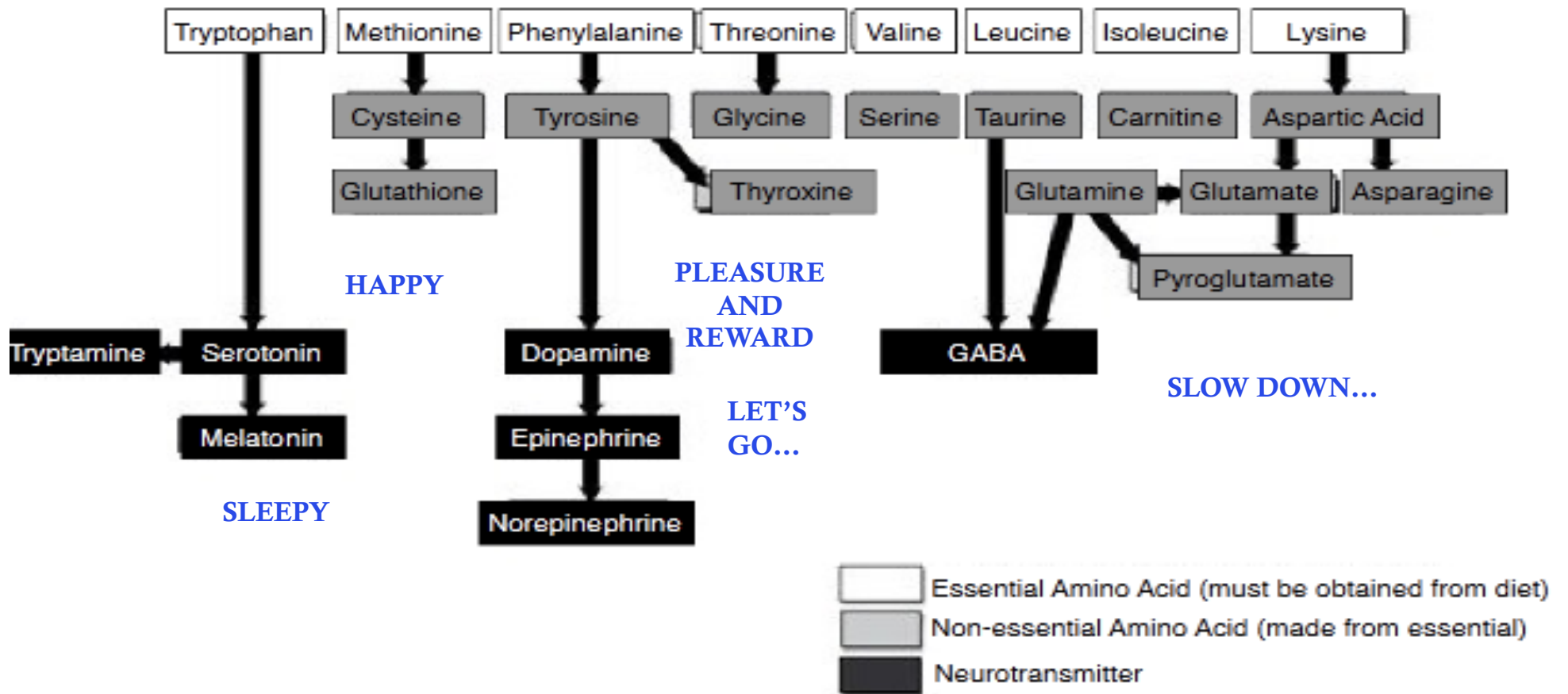
Humans desire fat, salt, and sugar

- Homeostatic survival – **glycogen** (brain and muscle)
- Optic nerve activation (eyes are external projection of brain)

When was the last time your patient saw an optometrist?

Ask about changes in vision; connected to hydration and glucose stabilization

- **Neurotransmitter** reward systems (e.g., dopamine, serotonin, opioids, and endocannabinoid) modulate nervous system
- Taste receptors on the tongue and palate (**oral cavity**) are the MOST important factor in guiding food intake in the brain



Lara, M. Food for thought: How nutrients affect the brain. 2012. Available at: http://www.slideshare.net/mlaramd/food-for-thought-how-nutrients-affect-the-brain-12058042?from=share_email.

BRAIN HEALTH AND THE GI TRACT

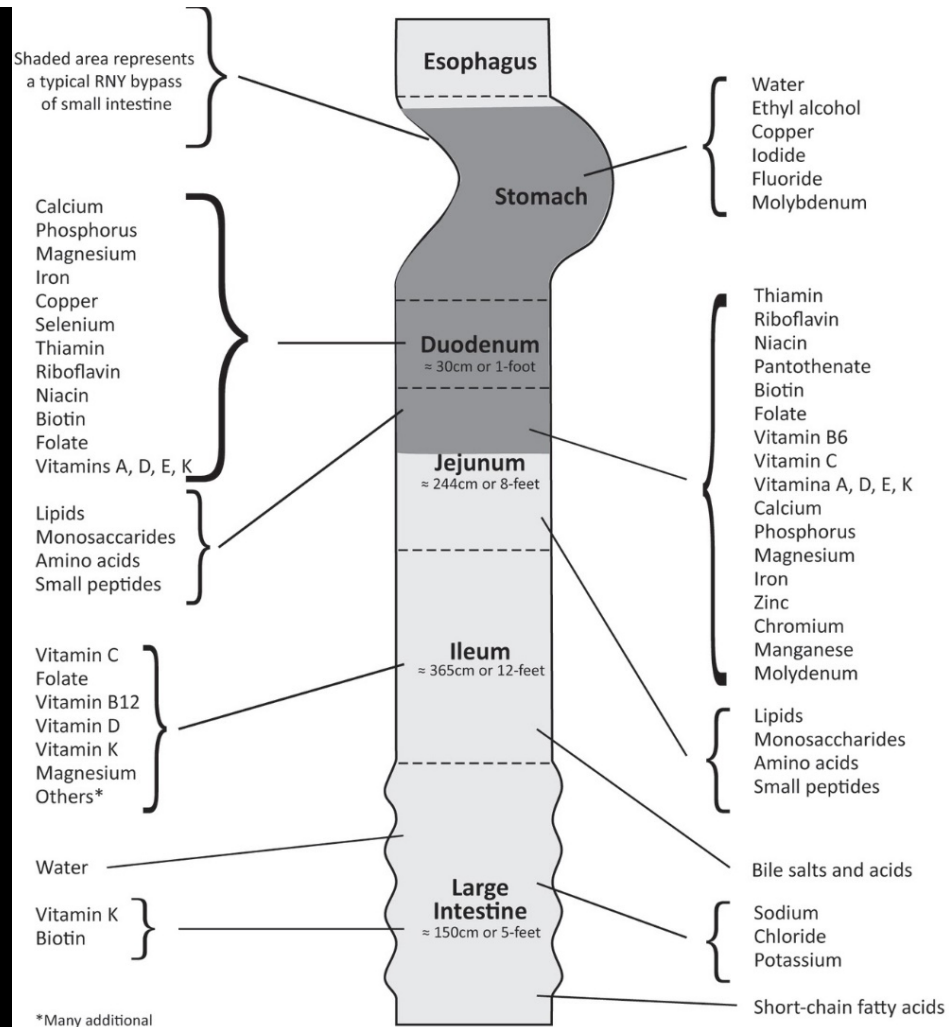
STOMACH: HCl, B₁₂, and initiation of protein metabolism

JEJUNUM: Fatty acids

ILLEUM: Bile salts

LARGE INTESTINE: Short-chain fatty acids

***microbes use the colon to ferment CHO and create neurotransmitters that alter “conscious behavior.”**



*Many additional nutrients may be absorbed from the ileum depending on transit time.

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DIET IS CRITICAL TO GUT HEALTH

1. Plant-focused diets increase microbial diversity and SCFA production

- Diversity is key!

“...deficiency of fiber in the westernized diet can explain much of the morbidity and mortality associated with westernized diseases.

Wilson AS et al. Dig Dis Sci. 2020.



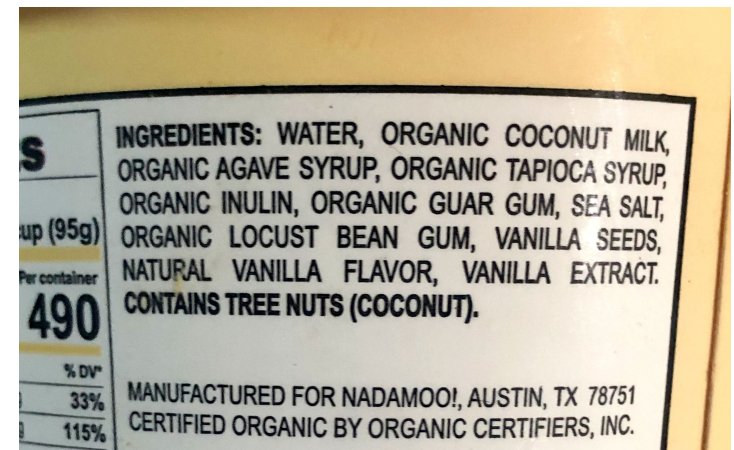
DIET IS CRITICAL TO GUT HEALTH

2. Western diet negatively impact gut permeability and microbial diversity

Emulsifiers damage mucosal lining of endothelium

“...deficiency of fiber in the westernized diet can explain much of the morbidity and mortality associated with westernized diseases.

Wilson AS et al. Dig Dis Sci. 2020.

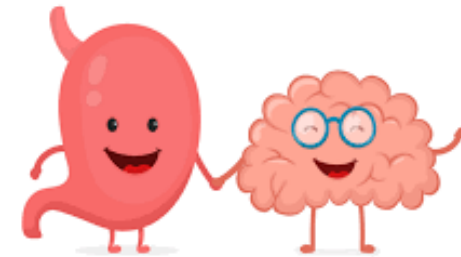


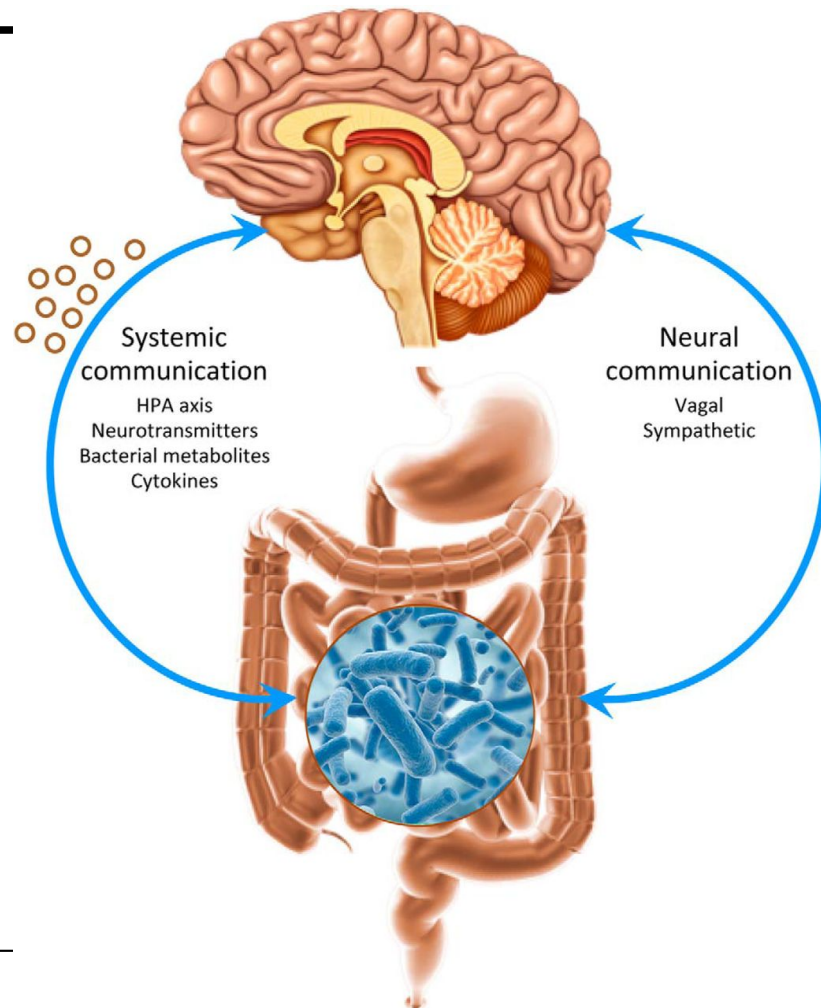
“Carrageenan and CMC administered in animal models consistently result in intestinal ulcerations with histopathological features similar to human IBD.”

Martino JV, Van Limbergen J, Cahill LE. Front Pediatr. 2017.

NEUROGASTROINFLAMMATION

- Festival the free-radicals
 - **Irregular eating patterns;** hepatic and pancreatic burnout
 - **Gastrointestinal atrophy**
 - minimal fiber consumption
 - Where did all the gluten go?
 - **Pro-inflammatory feeding habits**
 - Artificial sweeteners/emulsifiers
 - Minimal color (sequester free-radicals)
 - Inadequate hydration
- The faster the brain burns energy the greater the demand for waste removal
 - Carbon emissions?
 - Speed vs. efficiency?





**NEURODEVELOPMENTAL
DISORDERS**
IBS, ANXIETY, AUTISM



**NEURODEGENERATIVE
DISORDERS**
PARKINSON'S , ALZHEIMER'S



**LOW
DIVERSITY**

**HIGH
DIVERSITY**

**LOW
DIVERSITY**

Clinical Presentation	Dietary Habits	Underlying Nutritional Concern	Foods to Increase
Low energy, vegetarian or vegan, elderly with s/s of depression	Processed CHO snack foods No variety Limited preparation of meal	B₁₂, inadequate fiber, Vitamin C	Eggs, lamb, lentils with tomatoes (non-heme protein optimization), nutritional yeast, citrus, and pomegranates (microbial fuel)
Poor concentration anxiety, nervous movements/twitch, symptoms of ADHD, and easily distractible	High Na ²⁺ , excess added sugars but WNL kcal, and limited H ₂ O	Cellular inflammation, n-6 fatty acids, hyperactivity of cells, cellular apoptosis	Potassium (potatoes, legumes, apricots, coconut water, citrus), seafood for n-3 (sardines and shellfish), popcorn, and dried garbanzo beans
Body weight above 'desired' medical parameters, DMII or insulin resistance, depression, or lack of vigor for change (ie, hopelessness)	Erratic feeding schedule, limited colorful foods, and refined CHO/added sugars	Endocrine overload, cortisol, adrenal fatigue, and NAFLD	Nuts and seeds (increase nutrient density; relax about kcal), complex CHO (oats, hummus, beans), and "meal" smoothies (banana, pineapple, cashews, and coconut water) – YUM!!!

GLOBAL NUTRITION TRENDS

Continue to focus on REMOVAL of negative symptoms

- Waiting for clinical indicator (e.g., laboratory values, dx, or disease condition)
- Food regimen/intervention is secondary to pharmacological or invasive intervention
- Ownership of genetic and epigenetic variables (ie, MTHFR) that impact homeostasis
- Prevention and conscious avoidance of disease before illness?

Hackert AN, Kniskern MA, and Beasley TA. JAND. 2020.

GLOBAL NUTRITION TRENDS

Registered Dietitian Nutritionist Role (RDN)

- Pivotal in medical community, yet culinary/practical application of concepts impaired
- Access to knowledge?
- Awareness of clinical impact of dietary modification on health by community?
- Cultural awareness and educational sensitivity?
- Acknowledgement and acceptance of environmental privilege(s)?
- Role of poverty? Homelessness?

Hackert AN, Kniskern MA, and Beasley TA. JAND. 2020.

GLOBAL NUTRITION TRENDS (CONT.)

3. Food Confusion

- Dieting and metabolic complexity creates consumer confusion
 - Gluten-free, Keto, IF, Psychobiotic, etc.

Consumers want MORE protein and continue to struggle consuming adequate dietary FIBER to support gut health

#FOODMATTERS





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“Turn IN at the fork”



#foodmatters | @AprilHackert | @healingkitchen | @ctcnutrition