



Welcome to Today's Expert Webinar for the 2020  
MQii Learning Collaborative:

## **“How Malnutrition Presents in Patients with Mental Health Conditions”**

**Wednesday, February 19, 2020**

We will get started promptly at  
11:00 AM ET  
(10:00 AM CT; 9:00 AM MT; 8:00 AM PT)

*All phone lines have been muted*

The Malnutrition Quality Improvement Initiative (MQii) is a project of the Academy of Nutrition and Dietetics, Avalere Health, and other stakeholders who provided guidance and expertise through a collaborative partnership. Support provided by Abbott.

# Before We Get Started...

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Sharing January MQii ...

**MQii**  
MALNUTRITION QUALITY  
IMPROVEMENT INITIATIVE

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Q&A  
All (0)

Select a question and then type your answer here. There's a 256-character limit.

Send Send Privately...

# Today's Agenda

Agenda Item	Presenter
Welcome and Introduction	Christina Badaracco, MPH, RD <i>Research Scientist at Avalere Health</i>
Connections between Mental Health and Malnutrition	April N. Hackert, MS, RDN, CEDRD <i>Psychiatric Clinical Research Dietitian at Choose to Change Nutrition Services</i>
Malnutrition Care in Behavioral Health Clinics	Sharon Lemons, MS, RDN, CSR, FAND <i>Senior Dietitian at My Health, My Resources of Tarrant County</i>
Questions – 15 mins	



MALNUTRITION QUALITY  
IMPROVEMENT INITIATIVE



April N. Hackert, MS, RDN, CEDRD  
Psychiatric Clinical Research Dietitian  
Choose to Change Nutrition Services

- Explain basics of neuroscience and physiology behind mental health conditions
- Describe how food and nutrition are connected to brain function
- Explain clinical manifestation and treatment of malnutrition in patients with mental health conditions

# Malnutrition and Mental Health

Mental and addictive disorders affected more than 1 billion people globally in 2016. They caused 7% of all global burden of disease and 19% of all years lived with disability.

# Clarifying Malnutrition

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- 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

# Current State of Mental Health Clinical Assessment

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1. Focus on disease treatment
  - Waiting for clinical indicator (e.g., laboratory values, diagnosis, or disease condition)
  - Food regimen/intervention is secondary to pharmacological or invasive intervention
2. Registered dietitian nutritionist role
  - Pivotal in medical community, yet culinary/practical application of concepts impaired
  - Access to knowledge?
3. Food confusion
  - Dieting and metabolic complexity creates consumer confusion
    - Gluten-free, paleo, psychobiotic, etc.



# Biological Basics of Mental Health

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## Disease progression mechanisms

1. Energetic imbalance – not kcal IN vs. OUT; mitochondrial efficiency
2. Multi-genetic background including thyroid peroxides, peroxidase, myelin transcription factor 1 (mutations), FOXA3
3. Microbial
  - Dietary intake
  - Physical activity

Demine et al. *J Cell Physiol.* 2017; 1-19.

# Your Brain and Food

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Taste receptors on the tongue and palate (oral cavity) are the MOST important factor in guiding food intake in the brain

Humans desire fat, salt, and sugar

- Homeostatic survival – glycogen (brain and muscle)
- Optic nerve activation (eyes are external projection of brain)
- Neurotransmitter reward systems (e.g., dopamine, serotonin, opioids, and endocannabinoid) modulate nervous system

**Berthoud HR. *Regulatory Peptides*. 2008; 15-25.**



# Human Food Patterns of Dysfunction

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

## Science News

*from research organizations*

### Poor diet and high blood pressure now number one risk factors for early death

Twenty-five year study of global burden of disease data released

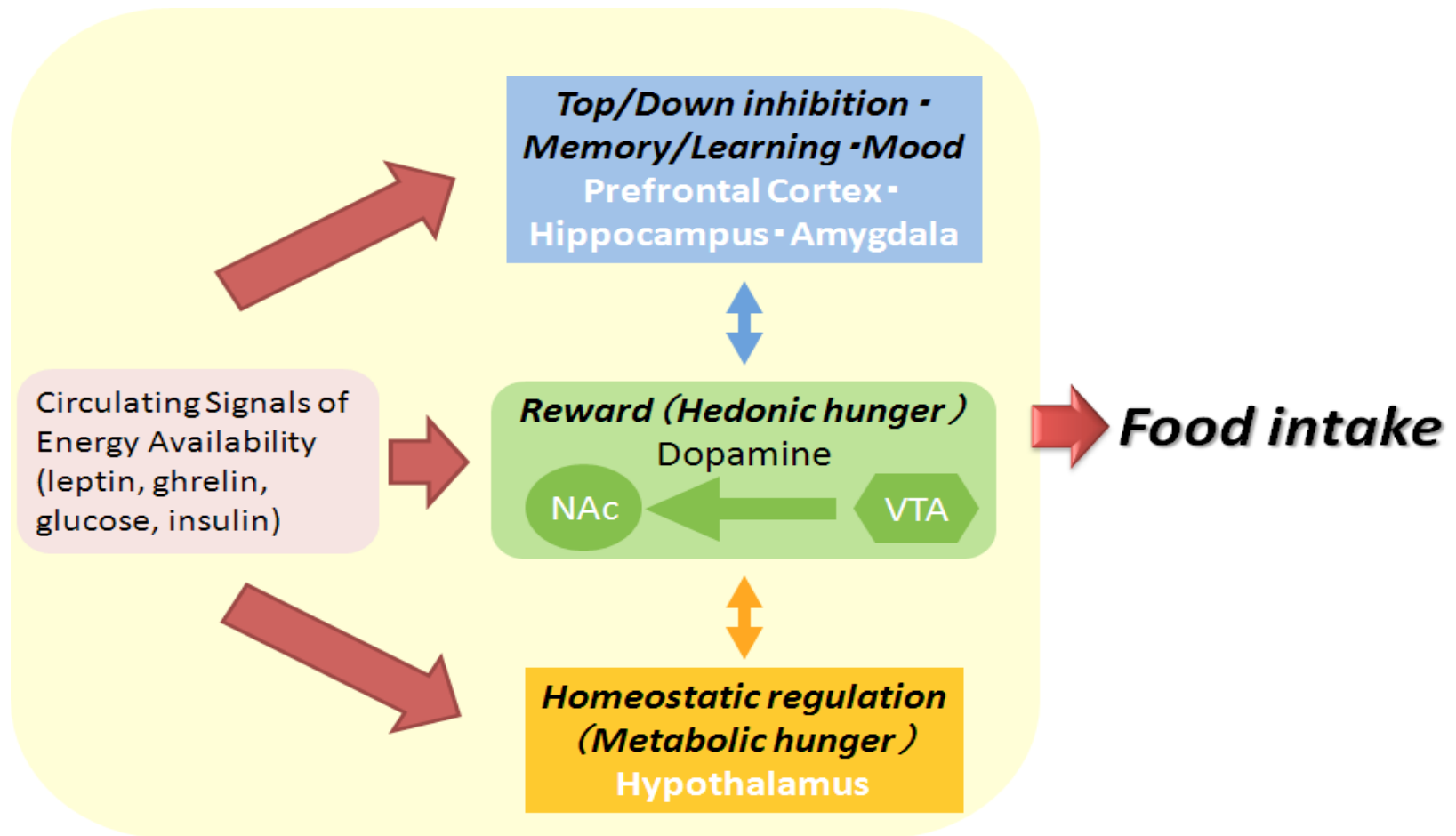
*Date:* September 11, 2015

# BMJ Open Ultra-processed foods and added sugars in the US diet: evidence from a nationally representative cross-sectional study

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Eurídice Martínez Steele,<sup>1,2</sup> Larissa Galastri Baraldi,<sup>1,2</sup>  
Maria Laura da Costa Louzada,<sup>1,2</sup> Jean-Claude Moubarac,<sup>2</sup>  
Dariush Mozaffarian,<sup>3</sup> Carlos Augusto Monteiro<sup>1,2</sup>

58% of Americans' energy intake is derived from ultra-processed foods

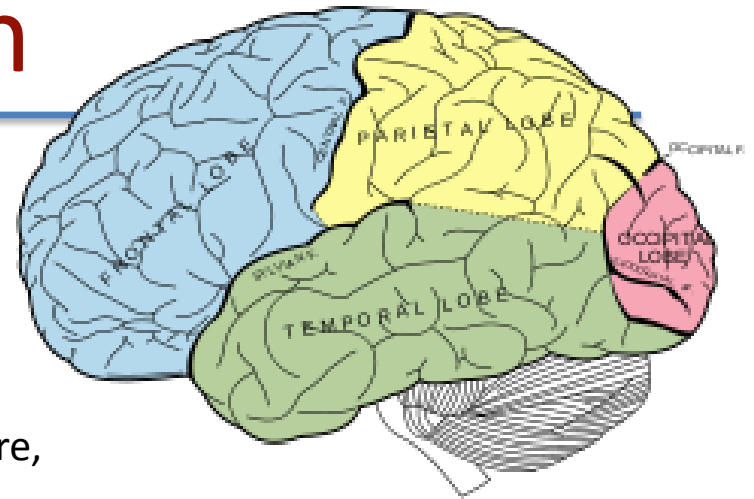


# The Human Brain

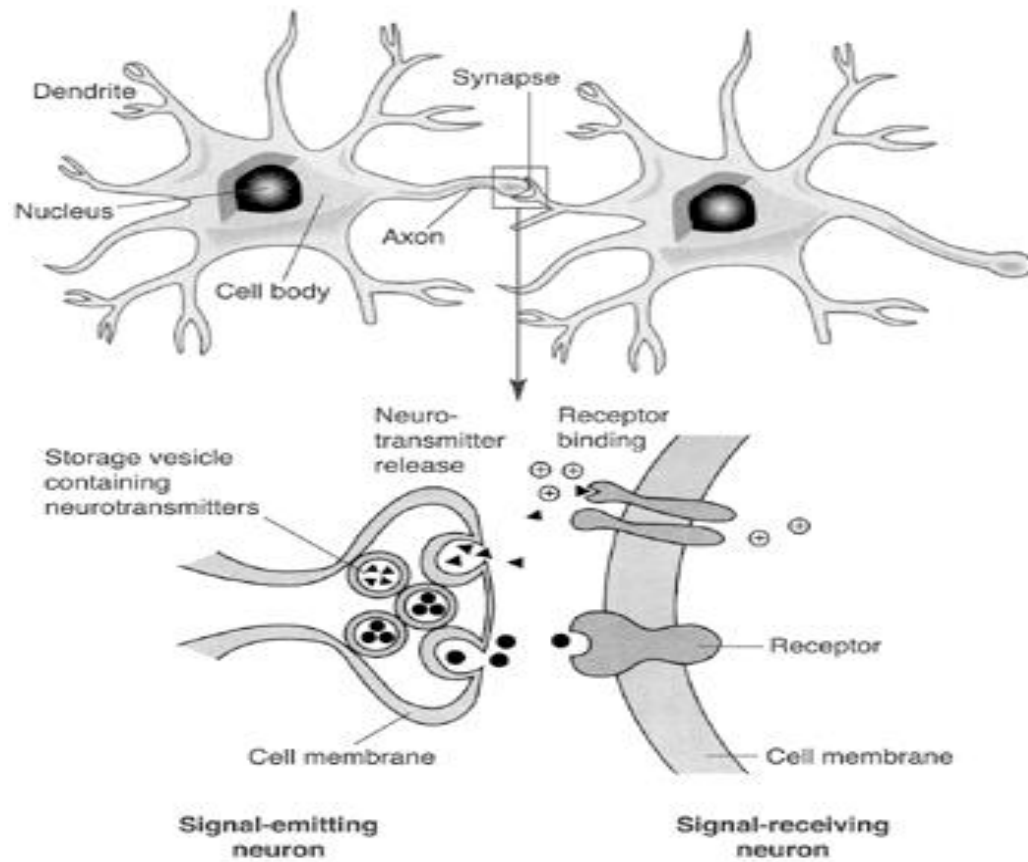
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## Cells

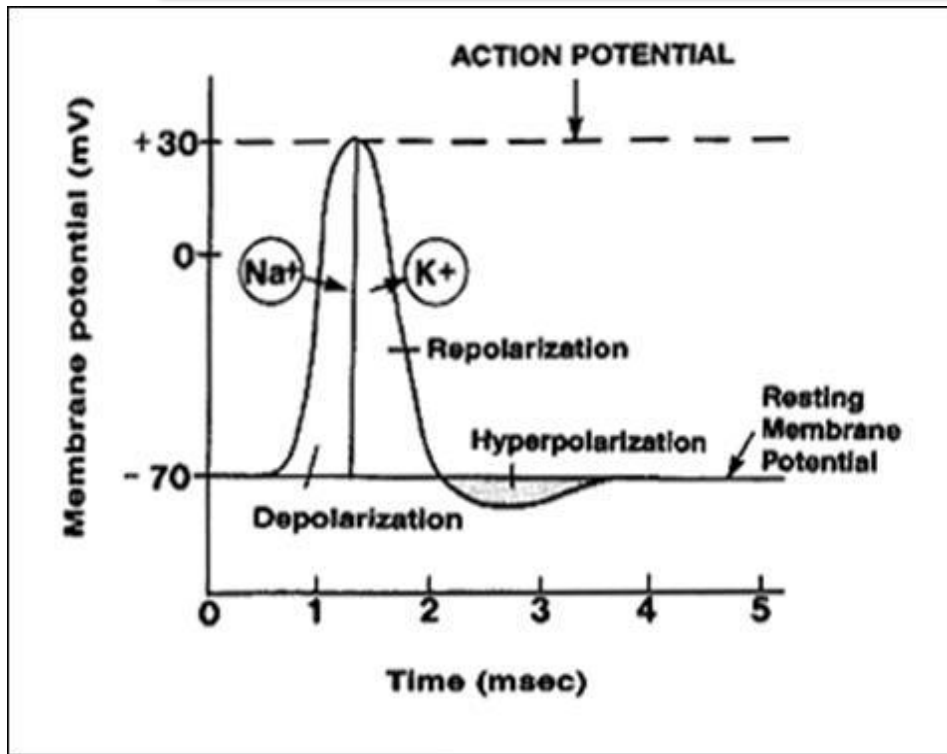
1. Glial cells (10:1)
  - “Glue”
  - Create myelin (insulation), provide structure, supply nutrients & oxygen and manage neurological wastes
2. Neurons (functional unit)
  - Communication highway







# Electrolytes Make the Brain Run



Action potentials (electrochemical signals)

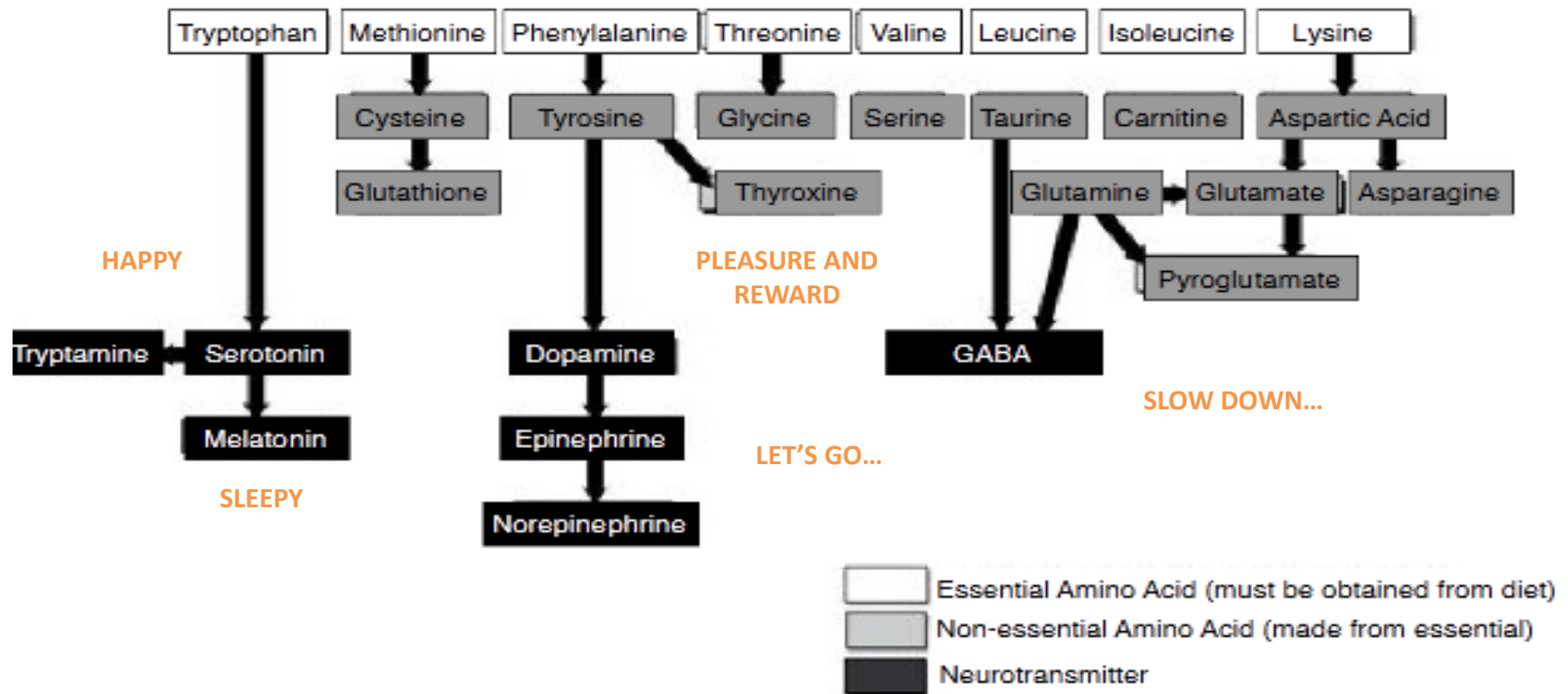
- Transmit data (i.e., thought, idea, fear, emotion, etc.)
- Ranges from 10–100/sec.
- Involve neurons and electrolytes

# Action Potential Problems

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- Hypervigilant brain (i.e., rapid action potential activation) places increased demand on liver, intestines, and kidneys
- Cravings will be for refined carbohydrates, sodium, and low-fiber/residue

**MINIMIZE DIGESTIVE COMPLEXITY AND ACCELERATE ABSORPTION OF  
KEY BRAIN NUTRIENTS!**



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](http://www.slideshare.net/mlaramd/food-for-thought-how-nutrients-affect-the-brain-12058042?from=share_email).

# Does Food Really Matter?

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# Clinical Assessment

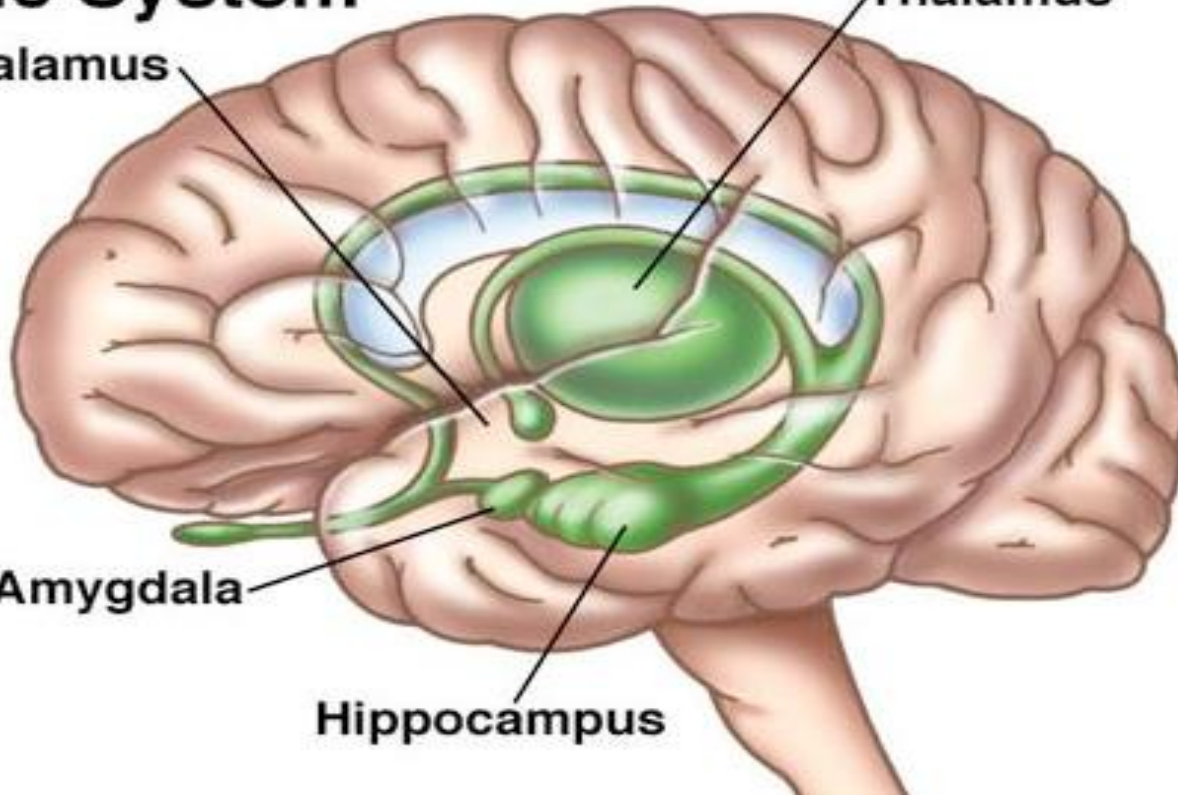
# Limbic System

Hypothalamus

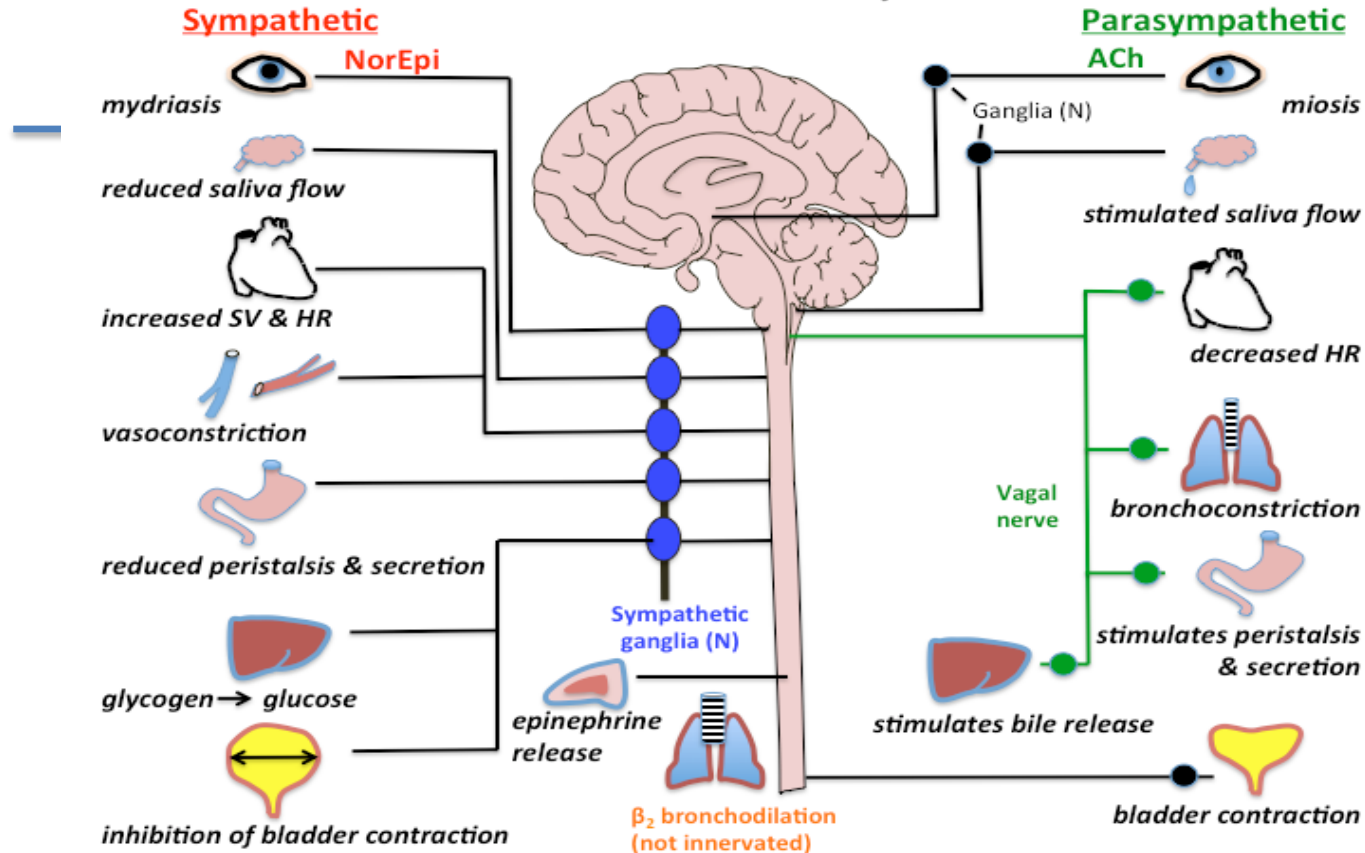
Thalamus

Amygdala

Hippocampus



# The Autonomic Nervous System





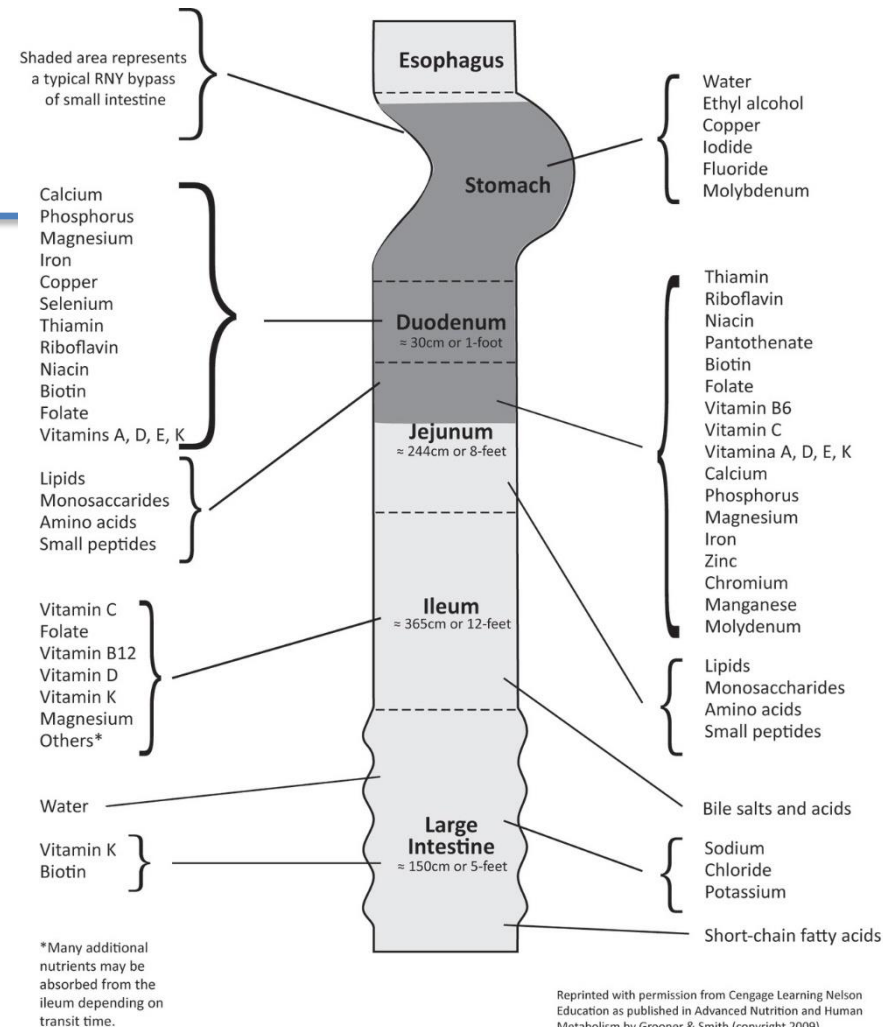
# Regions of the GI Tract Most Important for Brain Health

**STOMACH:** HCl, B<sub>12</sub>, and initiation of protein metabolism

**JEJUNUM:** Fatty acids

**ILLEUM:** Bile salts

**LARGE INTESTINE:** Short-chain fatty acids  
\*microbes

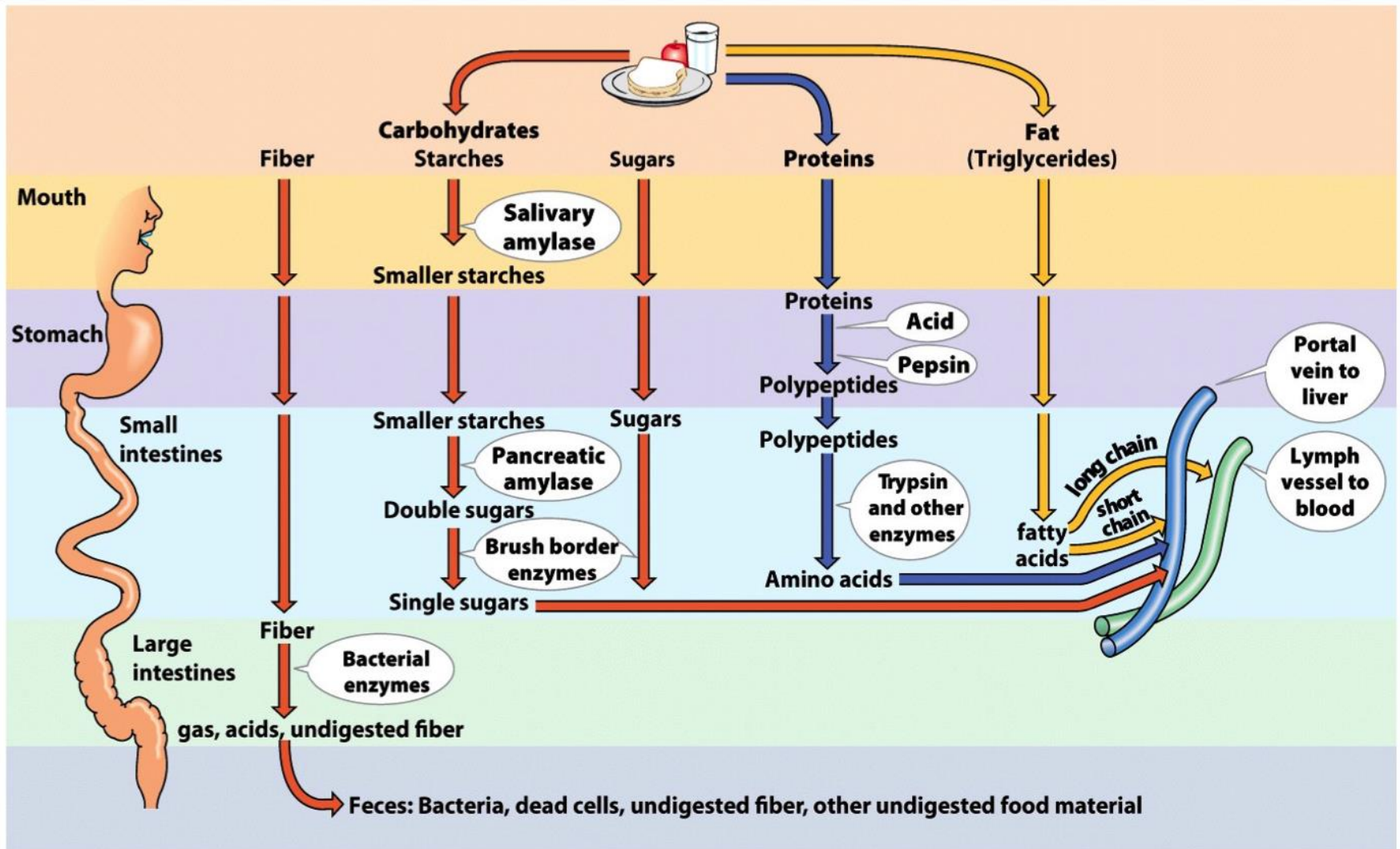


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# Diet is Critical to Gut Health

1. Plant-focused diets increase microbial diversity and SCFA production
  - Diversity is key!
2. Western diet damages gut permeability and microbial diversity
  - Emulsifiers damage mucosal lining of endothelium





# Culinary Medicine

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



Statement of recommendation to view the biochemical aspects of food as an artist manifestation of art (Terry SI, Hanchard B; *BMJ*, 1979)



Medical school training is beginning to incorporate culinary medicine techniques; being led by dietitians while using interdisciplinary team members for proof of concept (Eisenberg DM et al; *JAMA Intern Med*, 2013)

## What Is Culinary Medicine and What Does It Do?

John La Puma, MD, FACP<sup>1</sup>

### Introduction

**O**VER THE PAST 35 YEARS, a new enthusiasm has emerged about the relationship of food, eating, and cooking to personal health and wellness.<sup>1</sup> 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

Format: Abstract ▾

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*Proc (Bayl Univ Med Cent)*. 2018 Sep 11;31(4):439-442. doi: 10.1080/08998280.2018.1473742. eCollection 2018 Oct.

## Impact of culinary medicine elective on medical students' culinary knowledge and skills.

Jaroudi SS<sup>1</sup>, Sessions WS 2nd<sup>1</sup>, Wang VS<sup>1</sup>, Shriver JL<sup>1</sup>, Helekar AS<sup>1</sup>, Santucci M<sup>1</sup>, Cole L<sup>1</sup>, Ruiz J<sup>1</sup>, Fackrell J<sup>1</sup>, Chauncey K<sup>2</sup>.

### Author information

- 1 Texas Tech University Health Sciences Center School of Medicine, Lubbock Texas.
- 2 Department of Family Medicine, Texas Tech University Health Sciences Center Lubbock Texas.

### Abstract

Diet has an important role in the treatment and prevention of chronic illnesses. Physicians are regarded as having proficient knowledge about nutrition, but most believe that they lack an understanding of clinical nutrition. In fall 2016, a group of medical students developed a culinary medicine elective for 20 students at Texas Tech University Health Sciences Center School of Medicine in Lubbock that included four didactic sessions and four interactive cooking labs that culminated in a final contest. The elective was meant to educate medical students about nutrition and dietary habits for their own benefit and that of their future patients. Surveys were administered to participants before and after the elective. Results showed a significant increase in confidence in overall culinary skill level, knowledge of ingredients, knowledge of cooking techniques, and ability to use kitchen supplies ( $P = 0.002, 0.002, 0.0004, \text{ and } 0.003$ , respectively). The culinary medicine elective appears to be a valuable addition to the medical school curriculum.

**KEYWORDS:** Culinary medicine; medical education; nutrition; preventive medicine



Clinical Presentation	Dietary Habits	Underlying Nutritional Concern	Foods to Enhance
Low energy, vegetarian, elderly with s/s of depression	Processed CHO snack foods No variety	B <sub>12</sub> , 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	High Na <sup>2+</sup> , excess added sugars but WNL kcal, and limited H <sub>2</sub> 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
Excess adiposity, DM, depression, or unmotivated client	Erratic feeding schedule, minimal color, 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!!!



MALNUTRITION QUALITY  
IMPROVEMENT INITIATIVE



Sharon Lemons, MS, RDN, CSR, FAND  
Lead Dietitian  
My Health, My Resources of  
Tarrant County

- Describe roles of Certified Community Behavioral Health Clinic in patient care
- Explain importance of nutrition care for behavioral health patients
- Describe future opportunities for nutrition interventions





# Disclosures

- Employee of MHMR of Tarrant County

# Practice Setting

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- Nutrition counseling in the mental health clinics in Tarrant County
- My Health My Resources (MHMR)
- Nearly 50 years in operation
- Community-based services
  - for youth and adults
  - intellectual and developmental disabilities (IDD)
  - mental health conditions
  - substance use disorders
- Person-centered
- WE CHANGE LIVES!



# Resources and Options for Treatment

# What is a CCBHC?

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- Certified Community Behavioral Health Clinic
- Excellence in Mental Health Act 2014 (bipartisan)
- Designation as a Medicaid provider
- Designated Collaborating Organizations (DCOs)
- Encouraged to use telemedicine

# More Information on CCBHCs

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What are the 9 Specific Services that CCBHCs Must Provide?



Credit: Center On Integrated Health Care & Self-Directed Recovery

## Resources:

- [Centers for Medicaid and Medicare Services](#)
- [Substance Abuse and Mental Health Services Administration](#)
  - [Criteria for Certified Community Behavioral Health Clinics](#)
- [National Council for Behavioral Health](#)



# Patient Care at a CCBHC

## Criteria for the Demonstration Program to Improve Community Mental Health Centers and to Establish Certified Community Behavioral Health Clinics

- Patient-centered care
- IDT coordinates medical, psychosocial, emotional, therapeutic, and recovery support needs
- Initial assessment – (8) assessment of need for medical care (with referral and follow-up as required)



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# Why Is a Dietitian There?

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- CCBHC-Related Quality Measures include:
  - BMI – screening and follow-up
  - Children's weight assessment
  - Controlling HTN
  - Diabetes screening for patients on antipsychotic medicines
  - Diabetes care for people with serious mental illness
  - Metabolic monitoring for children/adolescents on antipsychotics





# How is Malnutrition Assessed?

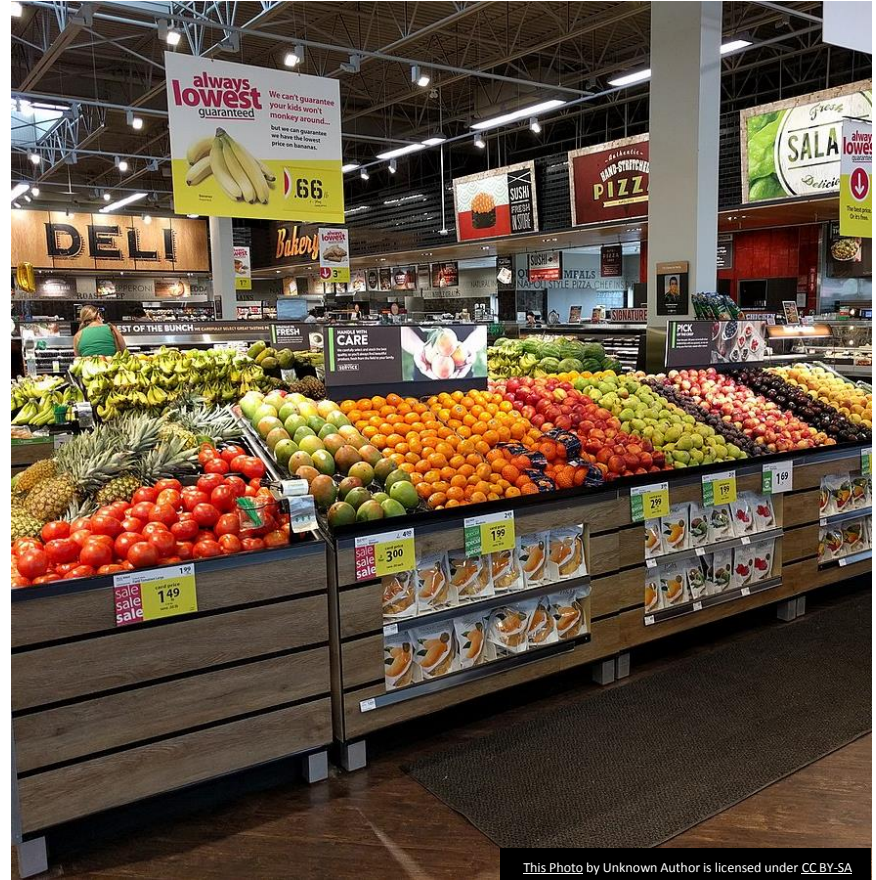
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- Before RD referral:
  - Physician (Psychiatrist)/nursing assessment
  - Waist circumference
  - BMI
- By RD:
  - NFPE



# How is Malnutrition Addressed?

- Counseling – back to basics
  - Grocery store tours
  - Hunger/fullness
  - Recipes
  - Meal planning



# Possibilities for the Future

- Community collaborations
  - Homeless kitchen
  - Church-provided foods
  - Vending machine choices
- Diabetes Prevention Programs (DPP)
- Diabetes Education Programs (DMST)
- Eating disorder center collaborations
- Cooking classes



# Behavioral Health Nutrition DPG

## **Mission:**

Provide resources and support which empower Behavioral Health Nutrition (BHN) members to excel in the areas of addictions, eating disorders, intellectual and developmental disabilities, mental health



# Final Thoughts

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- Think about what YOU like to eat right now, expand your repertoire by one food each week
- Find RDNs and use them!
- Keep staples around that you can use to cross-utilize
  - Beans/pulses, spices, olives, nuts/seeds, canned tomatoes, pasta, seafood, and frozen vegetables
- Take a walk/drive around your neighborhood to see the exciting, local resources – social exposure
  - Farmer's markets
  - Ethnic stores - unconventional foods

## Final Thoughts (cont.)

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- RDNs are the ONLY medical professionals trained to translate medical science into food; embrace their gifts so you can use your own!
- Biochemistry can relate to everyone. Be sensitive and gentle, but TEACH the truth about food and the body
- The brain is a powerful control center. Honor perceptions, but be mindful to chemical influences (hunger, trauma, etc.)

# Presenters' Contact Information

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Psychiatric Culinary Medicine Dietitian

**Choose to Change Nutrition Services**

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**TED<sup>x</sup> UIUC**  
x = independently organized TED event

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# *Questions?*



15 mins