Nutrition Therapy for Mental Health

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1. Basic brain/gut connection
2. Gut microbiome/bacteria balance
3. Gut bacteria balance influences neurotransmitters/mood and behavior

GOALS

4. Food influence on gut bacteria balance and mood and behavior
5. Blood sugar balance as a key component in mental health
6. Food allergies/sensitivities
7. Simple steps that can be taken to support mental health
Recovery from Panic Anxiety Disorder

An unexpected path
“A dark hole I couldn’t get out of” and never thought I would

Paranoia

Trembling

Detachment from self and others

Racing heart

Shortness breath

Fear or dying or going crazy
Healer Heal Thyself

- No medication
- No therapy
- No one with educated knowledge of disorder
- No idea what to do

After years of suffering...

Interest in Integrative/Functional medicine and nutrition....

Side effect: elimination of symptoms.

Physical and Mental
Functional Medicine Nutrition

Evolution in the practice of medicine the 21st century.

Underlying causes of disease

Disease-centered focus vs patient-centered approach

Whole person vs isolated set of symptoms

Bio-individuality

Empowers patients

- Institute for Functional Medicine
Diabetes
IBS
High Cholesterol
Arthritis
Bipolar
Depression
Alcohol Addiction
Insomnia

All isolated set of symptoms or are they interconnected?
Epigenetics

Behavior and environment- influence which of our genes are turned on or off

“What you eat, how you move, how you restore your system, along with your thoughts, feelings and social connections regulate your genes. And those genes end up creating the expression of who you are and how you are. You can turn on genes that create health or disease, weight gain or weight loss.”

-Mark Hyman, M.D.

“For centuries scientists have debated whether mental illness results from inborn or environmental factors. These arguments are now fading away as most experts now agree that both factors are highly important. Gene expression can go awry from toxic chemicals, emotional trauma, oxidative stress, medication side effects, abnormal nutrient levels.”

-William J. Walsh, PhD.
Nutrition: A Necessary Science

- Complex biochemical pathways running 24/7
- Vitamins, minerals, nutrients all needed for these pathways to run correctly and optimally
- Role of nutrients in the cause, treatment, and prevention of disease.
Farmacy

One should eat to live, not live to eat. - Molière
“Let food be thy medicine and medicine be thy food”

Hippocrates

“All Disease begins in the gut”

~Hippocrates
what we eat and how we take care of our bodies directly affects brain function
Mind-Body Connection

“This is the law of malnutrition: When your food quality or quantity deteriorates, your mood is the first casualty, even before your physical health begins to deteriorate.”

-Julia Ross
In 2014, the U.S. National Institute of Mental Health spent more than $1 million on a new research program zeroing in on the microbiome brain connection.
“In a very real sense, you have two brains — one in your head, and one in your gut. Both are created from the same tissue during fetal development, and they’re connected via your vagus nerve, the tenth cranial nerve that runs from your brain stem to your abdomen.”

-Dr. Mercola, M.D.
psychoactive
Serotonin, GABA, Dopamine, Endorphins

Through the gut brain axis -

gut bacteria deliver neuroactive substances that influence the brain
Intestinal Microbiome

- protect the lining of your intestines
- provide a strong barrier against toxins and “bad” bacteria
- limit inflammation
- improve how well you absorb nutrients from your food
- activate neural pathways that travel directly between the gut and the brain.
Can changing the bacteria in our gut improve brain function?

2016- 1st human trial to prove that changing the gut microbiota by increasing good bacteria improves brain function

-J Neurogastroenterol Motil.
95% of serotonin receptors found in the lining of the gut.

Neurotransmitter
Sleep, Appetite, Mediates moods, Inhibits pain.
GABA: the calming brain chemical

Low = high anxiety, panic, stress, inability to relax

Depleted from: Stress, Trauma, Pain, Fear, Anxiety, Anger, Grief, Panic

Sufficient = Relaxed, good stress tolerance
Good Bacteria secretes GABA

Happy Gut = Happy Brain

- Specific types of probiotics (lactobacillus, and bifidobacterium) produce GABA abundance
- Multiple studies- already shown promise in reducing anxiety

-Journal of applied microbiology
Mice engaged in obsessive-compulsive repetitive behaviors were pacified when given a strain of the bacterium Bacteroides fragilis.


GABA is used by inhibitory synapses more than any other neurotransmitter in the human brain and plays a large role in inhibiting over excitation to control anxiety and stress.

-Weeks, B., 2009
Alcohol
Benzodiazepines
Barbiturates

All stimulate GABA receptors.

Same as certain beneficial bacteria do.

Javier A. Bravo, et al. Ingestion of Lactobacillus strain regulates emotional behavior and central GABA receptor expression in a mouse via the vagus nerve. 2011
Treatment with Synthetic GABA agonists

Synthetic drugs that agonize GABA receptors—used to control stress, anxiety, and mood.
Reduce anxiety, depression, pain, schizophrenia, and drug and alcohol addiction.

Xanax, Valium, and Ambien are GABAergic in nature and have been found to improve GABA signaling and have positive results in helping with anxiety, depression, and insomnia.

An Integrative Approach

“due to the potential side-effects and risks associated with the use of these drugs, there is a great deal of popular and medical interest in the use of dietary supplements and nutraceuticals in order to manage stress and anxiety”

Weeks, B. 2009
How we feel both physically and mentally is highly influenced by the state of our microbiome.

The balance of good and bad bacteria is critical.
First evidence that friendly bacteria from food can affect brain function in humans by rebalancing microbiome.

High vegetable, fiber = healthier gut and brain

Western diet (high fat, carbs)= physical and mental health problems

-UCLA, journal of gastroenterology, 2013
Bad Mood Foods: A processed problem
Standard American Diet (SAD)
High in sugar, refined carbohydrates, trans fat, sodium and processed food
“Americans spend about 90 percent of their food budget on processed foods which contain a staggering number of artificial food additives, preservatives, colors and flavor enhancers. It’s virtually impossible to identify them all and ascertain their true impact on your health.”

- Dr. Mercola, M.D.
Sugar and White Flour

- Nutrients depleted just to break it down
- Inflammation
- Blood sugar changes
Feed pathogens in the gut → overtake more beneficial bacteria

- Suppresses the activity of BDNF (brain-derived neurotrophic factor). - key growth hormone in the brain
- Levels are critically low in both depression and schizophrenia.
- Promote chronic inflammation- disrupts the normal functioning of the immune system and the brain.
Sugar molecules + brain proteins = degeneration of brain and functioning
Blood Sugar Imbalances
Vicious cycle of ups and downs

Spike: Euphoria, excited, happy, calm

Crash: Anxiety, nervousness, headaches, depression, irritability
“Blood sugar increase leads to depletion of serotonin, GABA, dopamine, epinephrine, norepinephrine.”

-David Perlmutter, M.D.

“Hypoglycemia causes the brain to secrete glutamate in levels that can cause agitation, depression, anger, anxiety, panic attacks and an increase in suicide risk.”

-Russell Blaylock, M.D.
Balance Blood Sugar

A few simple steps

- 3 meals and 2 snacks
- Eliminate/reduce sugar and white flour
- Increase protein intake with each meal
- Swap out refined grains with whole grains
Consuming Probiotics may improve glucose metabolism

Greater effects when taken 8 wks or longer with multiple strains.

Zang et al. Medicina, 2016
Food allergies can affect the CNS:

Fatigue, slowed thought processes, irritability, agitation, aggressive behavior, nervousness, anxiety, depression, schizophrenia, hyperactivity, learning disabilities
Food Allergies

“Emotional and behavioral problems, particularly symptoms of depression, anxiety, and ADHD, are common among adolescents with food allergy in the general population and, in the case of elevated levels of depressive symptoms, persist into young adulthood.”

-Higher anxiety, depression rates for teens with food allergies

-European Journal of Allergy and Clinical Immunology, 2016
neurologic and psychiatric disorders
Celiac Disease

- Celiac Disease (CD) - immune-mediated disease dependent on gluten (a protein present in wheat, rye or barley).

- Occurs in about 1% of the population and is generally characterized by gastrointestinal complaints.

- The relationship of celiac disease to neurologic and psychiatric complications has been observed for over 40 years

Gluten Sensitivity

- Gluten sensitivity (GS): an illness distinct from celiac disease with an estimated prevalence 6 times that of CD.
- Neurologic and psychiatric complications. *May be the prime symptom in patients suffering from this disease.
- Gluten sensitivity may easily go unrecognized and untreated.

Psychiatric symptoms and disorders associated with CD and GS.

- Anxiety disorders
- Depressive and mood disorders
- Attention deficit hyperactivity disorder (ADHD)
- Autism spectrum disorders
- Schizophrenia (may be the psychiatric disorder with the strongest relationship)

Good Mood Foods
Leafy Greens
Mental Health Benefits

#1 mood enhancing veggie

Reduce stress, anxiety, depression

B vitamins- support brain against stress, anxiety, depression

Magnesium- calming mineral

Vitamin K- Preserves good mood omega 3’s
Healthy Fats
When society became fat phobic...

As we shifted from eating a high-fat, high-fiber, low-carb diet to a low fat, low fiber, high-carb diet we began to suffer from chronic conditions linked to the brain.

- David Perlmutter, M.D
Good fat in brain creates all cell membranes in the body.

With Bad fats- the brain can only make low-quality nerve cell membranes that don't function well. (trans fats, some sat fats)

A diet high in essential good fats- brain cells can manufacture higher-quality nerve cell membranes and influence nerve cells' ability to function at their peak capacity.
Omega 3’s : More than just heart healthy...

Omega 3 Fatty acids go to our brains first then the body

More omega 3’s we eat the better our moods

Dopamine can be raised by 40%. (enhances motivation, drive)

Used to treat severe and manic depression

Protect brain from damage caused from chronic stress

Enhances sensitivity of serotonin receptor- reduces depression, anxiety, violence, suicide

May disrupt the brain signals that trigger the characteristic mood swings seen with bipolar disorder. (Harvard University)

May have implications for successfully treating other psychiatric disorders such as depression and schizophrenia
Protein
A must for mental health: building blocks for amino acids

Precursors for neurotransmitters (emotion generators) -

dopamine, serotonin, GABA, endorphins
Feel good neurotransmitters only made from high protein foods

Most concentrated- beef, chicken, fish, eggs, cheese

Contain all 9 essential amino acids
Not Enough

- Anxiety
- Depression
- Insomnia
- ADD
- Alcohol/drug addiction

vs

Enough

- Energy
- Focus
- Blood Sugar Balance
Probiotic-rich Fermented Foods
Fermented foods helped curb social anxiety disorder in young adults.

“Fermented foods helped curb social anxiety disorder in young adults.”

-Psychiatry Research 2015 - Psych Central 2015

Increase good bacteria in the gut
Important B-vitamins

**B6** - helps in the production of neurotransmitters. Brewer’s yeast, bananas, cereal grains, legumes, vegetables (especially carrots, spinach and peas), potatoes, milk, cheese, eggs, fish and sunflower Seeds.

**B12** - helps maintain the health of nerve cells, neurotransmitter signaling. Beef and chicken liver, salmon, sardines, tuna, trout, turkey, beef, lamb

**Folate:**
helps the body utilize vitamin B12 and amino acids. Garbanzo beans, Liver, pinto beans, lentils, spinach, asparagus, avocado, beets, black eyed peas, broccoli

*MTHFR gene* - depression, schizophrenia, cancer (treatment active form of folic acid 5-MTHF(5 methyltetrahydrofolate))
formation of proteins and neurotransmitters. **Lamb**, pumpkin seeds, grass fed beef, chickpeas, cocoa powder, cashews, kefir/yogurt, mushrooms, spinach, chicken

neurotransmitter release. Calming mineral. **Spinach, Chard, yogurt/kefir, pumpkin seeds, almonds, black beans, avocado, figs, dark chocolate, banana**
A big bang for your buck...

Foods high in tryptophan can increase serotonin levels.

- Chicken
- Red meat
- Dairy foods
- Nuts
- Seeds
- Soybeans
- Bananas
- Tuna
- Shellfish
- Turkey

Lord & Brailey, Laboratory Evaluations for Integrative and Functional Medicine 2nd ed, 2008
Top 5 foods with high levels of serotonin and dopamine = Happy focused mood

1. Bananas and plantains
2. Nuts (walnuts)
3. Nut Butters
4. Pineapples
5. Avocados

When testing urinary neurotransmitters these foods must be avoided for 5 days!
We can teach people simple steps to help stabilize moods.
Key Steps

Increase nutrient intake
Reduce Sugar Intake
Remove Food Sensitivities
Decrease processed foods
Eat real whole foods
Increase probiotic rich foods
Cook more

Reduce systemic inflammation
Help repair/heal gut function
Improve neurotransmitter function
Increase Energy/Motivation
So what can we do?

Treat the whole person and not just each symptom

Recognize that we are unique physiological beings

Teach people what to eat

Teach people how to cook and prepare meals

Teach people how to achieve this on a budget

Help make whole foods more accessible
"The food you eat can be either the safest & most powerful form of medicine or the slowest form of poison."

Ann Wigmore