Healthy Self

Food for Body and Mind

Carolyn Denton, MA, LN
Perspectives in Nutrition

“Nutrients are the nourishing substances in food that are essential for the growth, development and maintenance of body functions. Essential meaning that if a nutrient is not present, aspects of function and therefore human health decline. When nutrient intake does not regularly meet the nutrient needs dictated by the cell activity, the metabolic processes slow down or even stop”

Wardlaw and Insel
Nutrients

- *Nourishing* substances

- Each nutrient has a specific job or function in the body.

- Nutrients act as cofactors, coenzymes, triggers of other processes.

- Without nutrients metabolic processes slow down or even stop.
Nutrient Support

- **Immune System Function**: vitamin A, vitamin E, zinc, folic acid, vitamin B-6, riboflavin, magnesium, selenium, vitamin C
- **Nerve Impulses**: sodium, potassium, magnesium, calcium, vitamin B6, folic acid, B-12, copper, vitamin C
- **Tissue Repair and Formation**: vitamin A, vitamin E, copper, riboflavin, magnesium, vitamin B6, vitamin C
- **Metabolism**: potassium, thiamin, niacin, vitamin B6, magnesium, riboflavin, folic acid and vitamin C
Magnesium

**Function**

- Needed for healthy bones
- Initiates muscle release
- Promotes healthy blood vessels
- May lower blood pressure
- Involved in temperature regulation
- Needed for serotonin production

- Involved in nerve transmission
- Activates energy synthesis
- Inhibits platelet aggregation
- Increases HDL cholesterol
- Helps control blood sugar
- Enhances immune function
Food is Information
Shift in Focus

• Food contains messages or directions to the systems of the body about function.

• Focus should be on foods to include rather than foods to exclude.
“It is a great temptation to people with bright minds and imagination to substitute the idea of the thing for the experience of the thing itself”
Food Informing Mood
Serotonin

- Functionally, serotonin creates a sense of wellbeing. Serotonin is inhibitory.
- Regulates comfort ‘rest and digest”
- Regulates sleep
- Influences mood
- Promotes concentration and focus
- Allows for social engagement
- ‘Let’s you feel good inside yourself”
Serotonin Imbalance

- Reduced appetite
- Pain sensitivity
- Negative thoughts, low self esteem
- Sleep disorders
- Hyper-vigilance
- Depression, anxiety
- PTSD (post-traumatic stress syndrome)
- SAD (seasonal affective disorder)
- OCD (obsessive compulsive disorder)
Nutritional Influence

- Ample dietary protein, specifically tryptophan.
- Vitamin C, vitamin B6, and folic acid are cofactors in the conversion of tryptophan to serotonin.
- Magnesium is a cofactor for serotonin synthesis.
- Vitamin B12 cofactor in neurotransmitter methylation.
- Vitamin D influences the metabolism of serotonin.
- Food that contains slowly absorbed carbohydrates from whole grain provides long-lasting serotonin.
Recipe for Serotonin

- **Tryptophan** found in protein such as turkey, soybeans or milk
- **Vitamin C** found in citrus fruits, tomatoes, kiwi, broccoli and parsley
- **Vitamin B6** found in bananas, spinach and white potatoes
- **Folic acid** found in orange juice, lentils, chickpeas and asparagus
- **Magnesium** found in brown rice, hazelnuts and Swiss chard
- **Carbohydrate** found in whole grain such as wheat, oats and quinoa
Dopamine

- Functionally creates a state of heightened arousal and alertness. Dopamine is excitatory.
- Rapid movement
- Learning
- Mental focus
- Cognition
- Emotional significance
- Relevance of an event
- “Reward” neurotransmitter
Dopamine Imbalance

- ADD and ADHD
- Parkinson’s
- Restlessness, restless leg syndrome
- Difficulty concentrating
- Impulsivity
- Anxiety
- Addictive behaviors (cigarettes, alcohol, drugs)
- Impatience and explosiveness
- Unable to relax
Nutritional Influence

- Normal insulin signaling in the brain stimulates the release of dopamine.
- Insulin resistance leads to the impairment of dopamine release.
- Zinc increase brain dopamine, thought that there is a zinc deficiency in ADHD.
- Tyrosine is a precursor to dopamine.
- Theanine and alpha lipoic acid also increase dopamine.
- Vitamin B6, folic acid and B12 are necessary for synthesis of dopamine.
Recipe for Dopamine

- **Tyrosine** found in black beans, pumpkin seeds, sesame seeds, avocado
- **Zinc** found in oysters, wheat germ, cashews, cocoa powder
- **Vitamin B6** found in bananas, spinach and white potatoes
- **Folic acid** found in orange juice, lentils, chickpeas and asparagus
- **Theanine** found in green tea, black tea, plants
Underlying Imbalances

- Identify core underlying imbalances.
- Faulty digestion, impaired detoxification, oxidative stress, hormonal imbalances, altered immunity and inflammation.
- Dysfunction and disease arise from diet, nutrient balance, environment, trauma, stress, attitude, beliefs, mind and spirit.
During the past decade inflammation has been revisited as an important etiological factor of mood disorders.

So if depression is an inflammatory disease, where does it come from?
A range of factors appear to increase the risk for the development of depression and seem to be associated with inflammation including psychosocial stressors, poor diet, physical inactivity, obesity, smoking, altered gut permeability, dental caries, poor sleep and vitamin D deficiency.

The pivotal element is that most of these factors are plastic and amenable to intervention both therapeutic and preventive. Prevention being the most pressing.
Fatty Acids

• A number of epidemiological and preclinical studies have proven the potential benefit and critical role of omega-3 PUFA in the development and management of major depressive disorder (MDD).

• Article presents an overview of the evidence to date about the clinical application and biological mechanisms of omega-3 PUFA in the treatment of MDD, especially the impact on inflammation.

• Given the potential action mechanism, clinical benefits and currently available clinical trial data, omega-3 PUFAs may deserve greater attention and wider application for treatment of MDD.

*Expert Opinion on Investigational Drugs, 2013*
Human Microbiome

- The bacterial ecosystem in the body.
- 10-100 trillion bacterial cells in the gut now recognized as a crucial factor in our overall health.
- 10 times as many human cells as there are in the body and 150 times as many genes as are in the human genome.
- Ferment otherwise indigestible foods. Produce vitamins K, B12, niacin, and folate.
- Metabolizing hormones and steroids.
- Strengthening the immune system.
- Now know bacteria actively affect energy, metabolism and mood and behavior.

Science, 2012
Gut Flora/Microbiotica

- Microflora of the human gut contains of greater than 100,000 billion bacteria and greater than 400 species.
- Produce short chain fatty acids, digestive enzymes
- Prevent other bacteria from colonizing
- Metabolized toxins
- Stimulate immune function
Dysbiosis

- An imbalance of intestinal bacteria
- High fat and high sugar influence imbalance
- Low levels of hydrochloric acid encourage bacterial overgrowth.
- Poor or sluggish transit time encourages proliferation of bacteria.
- Delayed or sluggish intestinal muscle activity (peristalsis) can influence balance.
Probiotic

- Commercial products
- Aim for > 20 Billion CFUs
- Multiple species (Lactobacilli, Bifidobacterium, *Saccharomyces boulardii*)
- Cool, unchlorinated water (if possible)

- Away from warm food/drink
- Empty stomach
- Refrigerated
- Expect a slight battle to ensue.
Prebiotic

Non-digestible food ingredients that beneficially affect the host by selectively stimulating the growth and/or activity of one or a limited number of bacteria in the intestines and thus improve host health.

These ingredients are neither hydrolyzed nor absorbed in the upper GI.

*International Scientific Association for Probiotics and Prebiotics*
Prebiotic Foods

• Artichokes, asparagus, bananas, Brussel sprouts, chicory root, dandelion greens, raw garlic, Jerusalem artichoke, jicama, leeks, legumes, onions, peas, rye, organic soybeans.

• Fermented vegetables

• Fermented dairy

• Fibrous foods or fiber supplements
The Stress Response

- Fight or flight
  Sympathetic nervous system stimulated
- Parasympathetic nervous system is over-ridden.
- Pupils dilate
- Blood pressure rises
- Digestion suppressed
- Immunity suppressed
- Detoxification suppressed
- Oxytocin is released

- Glucose released
- Cholesterol released
- Fluid retained
- Fat is deposited
- Decreased energy
- Hormones deranged
- Mood fluctuations
- Inflammatory mediators stimulated
- Gradual demineralization of bone
I think it's stress!!
“There is nothing bad or good but thinking makes it so” Shakespeare

- Key mediator of stress response is appraisal.
- The physical stress response varies depending on interpretation and perception.
- When unconscious attention is tied up in “fight or flight” the result is mental, emotional and metabolic patterns of excess and depletion.
- Ability to downshift out of SNS and promote PNS dominance is critical.
Mindfulness

- The quality or state of being conscious of something.

- A mental state achieved by focusing one’s awareness on the present moment, while calmly acknowledging and accepting one’s feelings, thought and bodily sensations.
Benefits of Mindfulness

- Manual “reset” of stress response
- Changing the mind changes the brain.
- “Observing Self” facilitates freedom from habitual self-harming thoughts and behaviors.
Mindful Eating

- Slow down the process of eating is to challenge the way you have always done it.
- For example, try eating using a pair of chopsticks instead of your customary utensils. This will force you to take smaller portions, eat more slowly, and look at your food more closely.
- Other strategies include eating with your non-dominant hand, chewing your food 30 to 50 times per bite, or trying to make the portion of food you’ve taken for the meal last 20 minutes. Observe the sensation of picking up the food and placing it in your mouth.
Three Breaths