The Food & Mood Connection

Presenter

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About This Class

- This seminar is for educational purposes only
- I am an educator and as such will not be:
  - diagnosing disease states or conditions
  - making medication or treatment suggestions
- However, I strongly encourage you to do so with your medical care providers

Objectives:

- Understand how food choices affect mood via biochemical messengers in the brain
  - Serotonin
  - Dopamine
  - Norepinephrine
- Recall serotonin-enhancing and dopamine/norepinephrine-enhancing foods
- Learn tips for feeling healthier and happier
The Food and Mood Connection

- The consensus in the medical community is that the food you eat impacts how you feel
- Food as medicine = nutraceuticals
- Food affects people in different ways:
  - Excessive amounts of sugar, caffeine, alcohol or chocolate may be the root cause of a mood disturbance
  - Increased intake of organic, fresh fruits and vegetables; oil-rich fish; and whole grains may help provide mood stability
- The key to understanding this connection lies in learning a little about how the brain functions

How Food Affects Mood

- Food affects mood via biochemical messengers in the brain called neurotransmitters
- The three neurotransmitters most sensitive to diet and influential in affecting mood are serotonin, norepinephrine and dopamine
  - Serotonin is a calming and relaxing chemical that eases feelings of tension and anxiety, reduces pain and decreases appetite
  - Norepinephrine and Dopamine increase alertness and are energizing chemicals
Neurotransmitters

- Serotonin is the "feel good" neurotransmitter because it plays a role in the regulation of mood, appetite and sleep
  - Low levels → anxious, irritable or sad → food cravings
  - High levels → drowsy, sluggish
- Norepinephrine and Dopamine also affect mood and are associated with voluntary movement and emotional arousal
  - Low levels → tired, unmotivated or foggy-headed

Neurotransmitters

- The correct balance of Serotonin, Norepinephrine and Dopamine in our brain means we:
  - have a better attention span
  - think more clearly
  - react more quickly
  - feel more motivated
Neurotransmitter Balance

- **Norepinephrine**: Alertness, energy
- **Dopamine**: Attention, motivation, pleasure, reward
- **Serotonin**: Mood, obsessions and compulsions, anxiety

Neuron / Neurotransmitter Action

- Neuron
- Axon
- Neurotransmitter
- Synapse
- Receptor

Neurotransmitter release

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- Serotonin reuptake
- SSRI's block the uptake
In general, serotonin levels are increased by a diet rich in complex carbohydrates and omega-3 fats. It’s the increase in the ratio of tryptophan to phenylalanine and leucine that increases serotonin levels. Fruits with a good ratio include dates, papayas and bananas. Foods with a lower ratio include whole wheat and rye bread.

If you are anxious and irritable and wish to be more relaxed, choose these foods:

- Whole grains like brown rice, quinoa, oatmeal, whole-grain breads and pastas
- Beans and legumes
- Root vegetables such as carrots, beets, potatoes, yams, onions, turnips, squash and pumpkin
- Nuts like almonds, walnuts, pecans, pistachios, cashews and peanuts
- Green, yellow and red vegetables
- Leafy greens
- Garlic
Serotonin-Enhancing Foods, cont’d

- High-tryptophan proteins like turkey, lamb, milk, cheese, cottage cheese and eggs
- Fish and plant sources of omega-3 fat such as
  - Anchovies
  - Bluefish
  - Carp
  - Catfish
  - Halibut
  - Herring
  - Lake trout
  - Mackerel
  - Pompano
  - Salmon
  - Striped sea bass
  - Albacore tuna
  - Whitefish
  - Tofu
  - Soybeans
  - Walnuts
  - Flaxseed oil
  - Canola oil

Direct Serotonin Food Sources

- Mushrooms
- Walnuts
- Hickory
- Plantain
- Pineapple
- Banana
- Kiwifruit
- Plums
- Tomatoes
Dopamine/Norepinephrine-Enhancing Foods

- Protein sources are the best food sources for the production of dopamine and norepinephrine.
- Eat more of these foods if you are tired and want to be more alert and energized:
  - Lean beef and pork
  - Poultry (turkey and chicken)
  - Seafood
  - Low-fat dairy products
  - Eggs
  - Beans and legumes

Dopamine/Norepinephrine-Enhancing Foods, cont’d

- Nuts (almonds, walnuts, pecans, pistachios, and cashews)
- Avocados
- Bananas
- Tofu
- Eggs
- Seeds (pumpkin, sunflower, sesame, and flaxseed)
- Green, yellow, red vegetables
- Leafy greens
Brain Function Interference

• The following foods may interfere with proper brain function and mood, reduce them in your diet:
  – Sugar, sweets, desserts
  – High-fructose corn syrup (soda)
  – Artificial sweeteners (diet soda)
  – Saturated fats and cholesterol
  – Refined and processed foods
• What you drink can also have an impact.
  – Too much caffeine → anxiety, irritability and mood swings
  – Too much alcohol → worsens depression and interferes with healthy sleep cycles

Food & Mood Recommendations

• Enjoy complex carbohydrates
• Eat foods containing tryptophan
• Eat lean protein
• Eat Omega-3 rich foods
• The more (natural) color the better
• Make water your main beverage
**Food and (Bad) Mood**

- Reduce the mood interferers:
  - caffeine
  - alcohol
  - tobacco
  - sweets

**Exercise and Mood**

Studies show that aerobic exercise improves mood via increased brain serotonin levels
In The End...

- Like anything else, it’s balance that counts
- Overeating carbohydrates and sugars can lead to decreased sensitivity to serotonin  
  - negative mood and weight gain
- Include small amounts of lean protein to balance serotonin levels
  - Some studies show that eating protein before carbs reduces the usual spike in serotonin

Basic Tips for Health & Happiness

- Don’t skip breakfast, and eat three well-balanced meals
- Eat lean sources of protein
- Avoid high-sugar foods and refined carbohydrates
- Eat 6+ servings of veggies and 2+ servings of fruit / day
- Add more omega-3 rich foods
- Choose beverages wisely
- Make sure you get enough vitamin B and D, Magnesium, Selenium and Zinc as low levels are linked to mood changes
- Snack well, foods such as nuts, veggies and fresh or dried fruits
Questions???

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References / Sources

- AANHEITROT, M., BENKELFAT, C., BOIVIN, D., & YOUNG, S. (2008). Bright light exposure during acute tryptophan depletion prevents a lowering of mood in mildly seasonal womenEuropean Neuropsychopharmacology, 18 (1), 14-23 DOI: 10.1016/j.euroneuro.2007.05.003