NUTRITION TO IMPROVE MENTAL AND PHYSICAL HEALTH

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May 18, 2012
OUTLINE

- Medical co-morbidity for mental health patients
- Nutrition to prevent and assist with medical illnesses
- How diet affects mental health
- Addressing dietary misconceptions
- Environmental and ethical considerations.
- Where do we go from here?
METABOLIC ISSUES IN GENERAL POPULATION

- In 2008, more than $\frac{1}{3}$ of adults in the U.S. (projected to be over 40% in near future) and $17\%$ of youth were classified as obese (BMI $\geq 30$).
- $\frac{2}{3}$ of adults are either overweight or obese in the U.S. (CDC statistic)
- $\frac{1}{3}$ of children (age 2 to 19) were classified as overweight (BMI $\geq 25$).
- 1 out of 6 deaths in U.S. in 2008 were due to CAD.
- $\frac{1}{3}$ kids born in 2000 will have Diabetes Type II.
- Economic Costs of obesity (medical costs and loss of productivity due to premature morbidity and mortality) in 2008: $>254$ billion
MEDICAL COMORBIDITY WITH MENTAL ILLNESS

- Obesity, diabetes, and cardiovascular disease in patients with schizophrenia and affective disorders occur **1.5 to 2 times** more often than in general population.
- To make matters worse, many psychotropics (antipsychotics, mood stabilizers, antidepressants) increase rate of metabolic issues and obesity even further.
- Antipsychotics may increase risk for or exacerbate diabetes, hyperlipidemia, and cardiovascular disease.
MEDICAL COMORBIDITY WITH MENTAL ILLNESS (continued)

- Dramatically increased health care costs.

- The lifespan of public mental health patients is close to **25 years** shorter than the general population.

- Smoking, inactivity, and poor diet all exacerbate the issue.
WHAT DO WE DO?

- Should we still prescribe certain psychotropics?
- Any lifestyle changes that we can make?
- Any dietary changes that may help?
- Are popular diets (Atkins, South Beach, Weight Watchers) the safest and most effective to counter these illnesses?
Replaced USDA Food Pyramid in June of 2011
“Let food be thy medicine and medicine be thy food.”
~Hippocrates
ATKINS DIET

- Developed by Dr. Robert Atkins in 1972. *Dr. Atkins’ Diet Revolution*
- Very popular example of a low-carbohydrate diet with millions of followers.
- The allowed foods include a liberal amount of all **meats**, **poultry**, **fish**, **shellfish**, **fowl**, and **eggs**; up to 4 ounces (113 g) of soft or semi-soft **cheese** such as cheddar cheese.
- Also included (but not emphasized) are most **salad vegetables**; other **low carbohydrate vegetables**, vegetable **oils**.
ATKINS DIET (continued)

- Usually leads to short-term weight loss due to significant calorie restriction (35% less than average caloric intake) and water loss.
- Independent studies showed high animal protein and fat intake without adequate vegetables and exercise led to insulin resistance, inflammation, and vascular resistance.
- These studies also showed higher rates of calcium excretion, constipation, kidney stones, high cholesterol, cardiac arrhythmias, cancer, osteoporosis, erectile dysfunction, and several sudden cardiac deaths.
Dr. Robert Eckel of the American Heart Association says that high-protein, low-carbohydrate diets put people at risk of heart disease.

- LDL cholesterol increased in more than 1/3 of participants.
- In a 2002 study of 12 normal weight men following this diet for 6 weeks, 7 had increases in total cholesterol of up to 60% higher while LDL was up to 70% higher.
ATKINS DIET (continued)

- Detrimental effects on endothelium (low fat diets have protective effects on endothelium).
- Dr. Atkins himself was obese, had HTN, and autopsy revealed heart disease when he died at 72 years old.
- In 2005, Dr. Atkins’ company Atkins Nutritionals had to file bankruptcy and switch its emphasis and marketing to low-carb snacks.
AHA (American Heart Association) supports this diet for the most part except 25 to 35% of calories from fat.

High consumption of fruits, vegetables, bread and other cereals, potatoes, beans, nuts and seeds.

Olive oil is considered an important monounsaturated fat.

Dairy products, fish, and poultry are consumed in low to moderate amounts, and little red meat is eaten.

Eggs are consumed zero to four times a week.

Wine is consumed in low to moderate amounts.
THE CHINA STUDY

- Performed from 1983 to 2003. The most definitive, long-term study performed on nutrition.
- Written by T. Colin Campbell, Ph.D. Professor of Nutritional Biochemistry at Cornell University and Project Director of the China-Oxford-Cornell Diet and Health Project (The China Study)
- Dr. Campbell has lectured extensively, and has authored more than 300 peer-reviewed research papers.
- Dr. Campbell has actively participated in the development of national and international nutrition policy.
- Discussed in recent health documentary “Forks over Knives”
Participants had similar lifestyles, genetic background.

Homogenous population.

Produced 8,000 statistically significant associations between various dietary factors and disease.

6,500 adults completed questionnaires, blood tests, and urine samples.
CHART 8.4: FEMALE COLON CANCER INCIDENCE AND DAILY MEAT CONSUMPTION

- Colon Cancer Incidence / 100,000 Women
- Per Capita Daily Meat Consumption (grams)
CHART 4.10: AVERAGE INTAKES OF DIETARY FIBER, GM/DAY

China: 33.3
United States: 11.1
CHART 8.3: COLORECTAL CANCER DEATH RATE IN "MORE DEVELOPED" COUNTRIES AND "LESS DEVELOPED" COUNTRIES

Death Rate per 100,000 People (age-adjusted)

More Developed Countries

Less Developed Countries

[Bar chart showing death rates for males and females in more and less developed countries]
CHART 10.2: ASSOCIATION OF ANIMAL VERSUS PLANT PROTEIN INTAKE AND BONE FRACTURE RATES FOR DIFFERENT COUNTRIES

Hip Fracture Incidence (per 100,000 person-years)

Vegetable-to-Animal Protein Intake Ratio (g/g)
CHART 16.3: NIH 2004 ESTIMATED FUNDING FOR DIFFERENT HEALTH TOPICS

- Clinical Research
- Prevention
- Cancer Research
- Brain Disorders Research
- Neurosciences Research
- Women's Health
- AIDS
- Cardiovascular Research
- Nutrition
Chart 5.3: Heart disease death rates for men aged 55 to 59 years and animal protein consumption across 20 countries.
CHART 10.4: ASSOCIATION BETWEEN ANIMAL PROTEIN INTAKE AND FORMATION OF URINARY CALCULI

Protein Intake vs. Annual Discharge Rate/10,000 pop.

Meat, Fish, and Poultry Protein Intake (g/head/day)
CHART 4.8: ANIMAL FAT INTAKE AND BREAST CANCER

Age-Adjusted Death Rate / 100,000 pop.

Animal Fat Intake (g/day)
## Chart 4.6: Fat Content of Sample Foods

<table>
<thead>
<tr>
<th>Food</th>
<th>Percent of calories derived from fat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butter</td>
<td>100%</td>
</tr>
<tr>
<td>McDonald’s Double Cheeseburger</td>
<td>67%</td>
</tr>
<tr>
<td>Whole Cow’s Milk</td>
<td>64%</td>
</tr>
<tr>
<td>Ham</td>
<td>61%</td>
</tr>
<tr>
<td>Hotdog</td>
<td>54%</td>
</tr>
<tr>
<td>Soybeans</td>
<td>42%</td>
</tr>
<tr>
<td>“Low-Fat” (or 2%) Milk</td>
<td>35%</td>
</tr>
<tr>
<td>Chicken</td>
<td>26%</td>
</tr>
<tr>
<td>Spinach</td>
<td>14%</td>
</tr>
<tr>
<td>Wheaties Breakfast Cereal</td>
<td>8%</td>
</tr>
<tr>
<td>Skim Milk</td>
<td>5%</td>
</tr>
<tr>
<td>Peas</td>
<td>5%</td>
</tr>
<tr>
<td>Carrots</td>
<td>4%</td>
</tr>
<tr>
<td>Green Beans</td>
<td>3.5%</td>
</tr>
<tr>
<td>Whole Baked Potatoes</td>
<td>1%</td>
</tr>
</tbody>
</table>
CHART 9.5: ASSOCIATION OF COW’S MILK CONSUMPTION AND MULTIPLE SCLEROSIS
ADVENTIST HEALTH STUDIES (AHS)

- Series of long-term research studies done at Loma Linda University with intent of measuring link between diet, lifestyle, disease, and mortality of 7th Day Adventists.
- Conducted in over 34,000 people over past 40 years.
- 7th Day Adventist religion encourages their followers to stay away from meat, fish, and eggs.
- Half of this population is vegetarian.
AHS RESULTS

- On average Adventist men live 7.3 years longer and Adventist women live 4.4 years longer than other Californians.
- Increasing consumption of red and white meat was associated with an increase of colon cancer.
- Eating legumes was protective for colon cancer.
- Eating nuts several times a week reduces the risk of heart attack by up to 50%.
- Eating whole wheat bread instead of white bread reduced non-fatal heart attack risk by 45%.
- Men who had a high consumption of tomatoes reduced their risk of prostate cancer by 40%.
CAN DIET PREVENT OR REVERSE HEART DISEASE?

- Dr. Caldwell Esselstyn, surgeon from the Cleveland Clinic wrote “Prevent and Reverse Heart Disease”

- Dr. Esselstyn enrolled patients with severe CAD often with h/o multiple CABG’s, PTCA’s, stents, etc. without improvement. These patients were also given up on by their cardiologists and surgeons who said they “can do nothing more” for these patients.
CAN DIET PREVENT OR REVERSE HEART DISEASE?

These patients were put on a plant-based diet which consisted of:

- Whole grains
- Vegetables
- Fruit
- Limited nuts, seeds
- No oils (of any kind)
- No meat (nothing with a mother or a face)
- No dairy
- Often, no cholesterol-lowering meds.
- Much lower percentage of fat (10%)
CORONARY ARTERY DISEASE
Coronary Artery Disease
Figure 9 (Above) Bracketed area in cardiac PET scan shows significant loss of blood perfusion. (Below) After 6 weeks of intense cholesterol reduction with plant-based nutrition there is almost total flow restoration.
Figure 16  Gradual plaque cap thickening (black arrow) and plaque shrinkage as achieved through plant-based nutrition.
Figure 15  Coronary angiograms of the right coronary artery before (left arrow) and then showing 30 percent improvement (right arrow) after approximately 60 months of a plant-based diet and cholesterol-lowering medication.
ADVANTAGES OF LOW FAT, HIGH CARB DIETS (PLANT- BASED DIET)

- Lower rates of depression
- Lower BP
- Lower risk of CAD
- Lower rates of sexual dysfunction
- Lower rates of cancer
- Lower rates of total cholesterol, LDL
- Reduced insulin resistance
- Improved endothelial function
- Reduced rates of inflammation, pain perception
- No need to count calories or measure portions.
“Nothing will benefit human health and increase chances for survival of life on Earth as much as the evolution to a vegetarian diet.”

~Albert Einstein
CAN I SURVIVE WITHOUT MEAT OR DAIRY?

Need to add:

- Vitamin B12 (Good MVI)
- Flaxseeds (for Omega 3 fats)
- Iodine (Good MVI)
- General Health: Plenty of whole grains, legumes, nuts, fruits, veggies.

Resources: PCRM.org, vegan.com, VeganOutreach.org, GoVeg.com, veganbodybuilding.com, fatfreevegan.com, chooseveg.com, food.com/recipes/vegan
CAN WE REALLY SURVIVE WITHOUT MEAT OR DAIRY?

- **Protein sources**: tofu, beans, nuts, seitan (wheat gluten), meat substitutes, soy.
- **Egg replacers**: For pancakes, cookies, etc.
- **Vegan cheese**: Soy, Almond
- **Milk**: Soy, Rice, Almond
- **Ice Cream**: Soy, Almond, Sorbet, Tofu (Tofutti)
- **Butter**: Earth Balance Margarine
- **Creamers**: Soy
Athletes on a Plant-Based Diet
Kenneth G. Williams
IRON WITHOUT MEAT?

Non-meat sources of iron

- Quinoa (4 oz) = 4mg
- Cooked Spinach (1/2 cup) = 3.2mg
- Lentils (4 oz) = 3mg
- Pumpkin Seeds (1 oz) = 4.2mg

Adult Daily Requirements for Iron

- Male: 8mg/day
- Female: 18mg/day
CALCIUM WITHOUT DAIRY?

Non-dairy sources of calcium

- Kale (1 cup) contains 180mg
- Collard Greens (1 cup) contains >350mg
- Turnip Greens (1 cup) contains 250mg
- Soybeans (1 cup) contains 175mg
- Fortified Orange Juice (1 cup) contains 300mg

Adult Daily Requirement of Calcium
1,000 to 1,500mg
OMEGA 3 FA’S

Can we obtain Omega 3 FA’s anywhere besides from fish?

Non- fish sources of Omega 3 FA’s:
• Flaxseeds (best)
• Hemp seeds
• Walnuts
• Dark green leafy vegetables
SUPPLEMENTS?

• For those not eating enough vegetables with Iron, a good multivitamin can supply this.

• If one does not consume meat or dairy, a Vitamin B12 supplement is necessary.
A 2009 study published in *Archives of General Psychiatry* found that people that consumed a Mediterranean diet are up to 30% less likely to develop depression than those who typically consume meatier, dairy-heavy food. Also, there was lower risk of ischemic stroke, mild cognitive impairments, and Alzheimer’s disease especially when combined with more exercise.
A deficiency in polyunsaturated fatty acids (found in nuts, seeds, fish, and leafy green vegetables) has been linked to ADHD in kids.
FISH OILS

- Shown to be beneficial in depression and postpartum depression.

- Beneficial in lowering risk for psychotic symptoms.

- Benefits are from omega 3 FA’s in fish (highest in salmon, herring, mackerel).

- Deficiencies of Omega 3 FA’s may be a risk factor for suicide.
FISH: GOOD FOR US?

- Omega 3 FA’s from fish can help reduce ischemic stroke risk and some aspects of heart disease but not mortality from heart disease.

- Harvard study showed increased breast CA risk (consistent with The China Study)

- Mercury poisoning
DIET AND DEPRESSION

- Saturated fats and refined carbs are very detrimental to the immune system.

- These foods (including pizza, hamburgers, high fat dairy, fried food, refined food, and sugary food) increased risk of depression over time.
CAN DIET BE A PAIN?

- Foods that can increase inflammation and pain perception: meats (including poultry and fish-anything with a face or a mother), dairy, wheat, eggs, nuts, coffee, citrus fruits.

- Foods that can reduce inflammation and pain perception: brown rice; some fruits (cherries, prunes, cranberries); cooked green, yellow, and orange vegetables; water.
The **UN FAO (United Nations Food and Agriculture Organization)** in 2006 published a report (**Livestock’s Long Shadow**) stating that the meat, egg, and dairy agriculture industry was responsible for higher rates of greenhouse gas emissions than the transportation industry.

According to the University of Chicago, being vegan is more effective in the fight against global warming than switching to a Prius: a vegan is responsible for the release of approximately **1.5 fewer tons of carbon dioxide** into the atmosphere each year than is a meat-eater. Driving a Prius saves **1 ton of carbon dioxide** per year.
Nitrous oxide is about 300 times more potent as a global warming gas than carbon dioxide. According to the U.N., the meat, egg, and dairy industries account for 65 percent of worldwide nitrous oxide emissions.
ANIMAL WELFARE

- 10 billion land animals killed for food each year in the U.S. (9 billion are chickens).

- Eliminating animal products from one's diet can save up to 200 animals/year (through reducing demand and sales of these products).
“To my mind, the life of a lamb is no less precious than that of a human being.”

Mahatma Gandhi

“If slaughterhouses had glass walls, everyone would be a vegetarian.”

Paul McCartney
There are many misconceptions about healthy nutrition which are fueled by propaganda, special interests, powerful multi-billion dollar corporations (meat and dairy industries), and lobbyists.

Healthy nutrition can produce tremendous beneficial effects on mental and physical health, can reduce health care costs for all, and lead to longevity (among other benefits).

Our diet not only affects our physical health but the health and existence of the environment and billions of animals.
SUMMARY (continued)

- We vote three times a day (at least) with our forks. We can either condone or condemn what is destroying our health, environment, and our animal friends that we share the earth with.
INFORMATIVE MOVIES AND PROGRAMS REGARDING NUTRITION AND FOOD INDUSTRY

- Earthlings
- Eating
- Fat, Sick, and Nearly Dead
- Food, Inc.
- Forks over Knives
- Future of Food
- The Last Heart Attack
- Meet your Meat
- Vegucated
REFERENCES

• www.AHA.org
• www.heart.org
REFERENCES (continued)

- www.PCRM.org
- www.peta.org
HELPFUL WEBSITES

- www.forkoverknives.com
- www.GoVeg.com
- www.PCRM.org (Physicians Committee for Responsible Medicine)
- www.vegan.com
- www.veganbodybuilding.com
- www.VeganOutreach.org