The Role of Dietary Supplements in Maintaining Cognitive Health and Mental Hygiene

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Chief Medical Officer, Walden Behavioral Care

Presented by:
Council for Responsible Nutrition
The Science Behind the Supplements
IN COLLABORATION WITH
Pharmacist SOCIETY
generationNP
Communicate. Collaborate. Educate.
Integrative Medicine

“What we have now is a ‘sick care’ system that is reactive to problems. The integrative approach flips the system on its head and puts the patients at the center, addressing not just symptoms, but the real causes of illness. It is care that is **preventive, predictive and personalized.**”

Ralph Snyderman, MD
Chancellor Emeritus
Duke University School of Medicine

Lee Hood, MD, PhD
P4MI Chairman and ISB President
The Problem

- Depression is one of the most serious and costly health problems in the world today
- Major Depression accounts for the 2\textsuperscript{nd} longest number of days lost to disability in the U.S.
- Approximately 15% of adults will experience severe depressed mood during their lifetime
  - Approx. 15% of these adults will commit suicide
- Suicide is the 3\textsuperscript{rd} leading cause of death in youth aged 15 to 24
- An Average of 25 Suicides per day occur for US Veterans (that we are aware of).
- One death from suicide every \textbf{40 seconds}. It is predicted that by 2020, the rate of death from suicide will increase to one every \textbf{20 seconds}. 
Diagnosis and Treatment

General Medical Treatment:

Symptoms
↓
Measure Physiology
↓
“Anti”-physiology treatment
↓
Measure physiology and symptoms

Psychiatric Treatment:

Symptoms
↓
“Anti”-Symptom treatment given
↓
Measure symptoms
Psychiatric Testing
Polypharmacy Highway

40% Relapsed within 15 weeks

20% Incapacitated or committed suicide

66% Residual symptoms
THE ZEEBRA Approach

T – Take Care of Yourself – Stress, Sleep, Sugar
H – Hormones – Thyroid, Sex Hormones
E – Exclude – Celiac, Allergies
Z – Zinc and Other Minerals – Mg, Li
E – Essential Fatty Acids – Cholesterol
E – Exercise and Energy
B – B Vitamins & Other Vitamins – B12, Vitamin D
R – Restore – GI tract, Probiotics
A – Amino Acids and Protein – Digestive and Absorption
Cultural Chaos

NO FATS?
The Brain

60% of the dry weight of the brain is fat

Approximately 30% of fatty acid pool cannot be made de novo and must be obtained through diet
“Low fat diets don’t work. I eat fish every day and my butt still drags on the ground!”
Omega-3 Fatty Acids

Inflammation research studies suggest that levels of omega-3 fatty acids may directly influence the magnitude of the inflammatory response to stress and depression.

**Neurotransmitters**
Every aspect of neurotransmission involves adequate functioning of omega 3s.
Omega-3s and Suicide in the Military

- Study of 800 U.S. servicemen and women who committed suicide between 2002 and 2008 (compared to 800 who didn’t)

- Personnel with medical records showing low blood levels of DHA were 62% more likely to have been suicide victims than those with the highest levels

- Study found that U.S. service personnel generally have low levels of DHA in their blood
42 patients (40.5 y/o) with dietary intake of Omega 3 <3 gms/day

DBPC 1.8 gms EPA .4gms DHA Omega 3 supplements or placebo BID x 8 weeks

Celexa 20-40mg

Higher proportion of patients achieved full remission in Omega 3 group versus the placebo group
- 44% versus 18%

Prevention is Possible

• Omega-3s may have the ability to delay or prevent psychosis
• 81 adolescents or young adults with subthreshold psychosis
• 1.2 g omega-3 fatty acids or placebo daily for 12 weeks

• After 40 weeks:
  – 5% (2 out of 41 individuals) in omega-3 group developed psychosis
  – 28% (11 of 40 individuals) in placebo group developed psychosis

Inflammation as a Predictive Biomarker as Response

Original Article

Inflammation as a predictive biomarker for response to omega-3 fatty acids in major depressive disorder: a proof-of-concept study

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Importance of Cholesterol

- The brain is a “cholesterol rich” organ
- Cholesterol is involved in the synthesis of all steroid hormones
- Activates serotonin and oxytocin receptors
- Bile salt formation for fat digestion and absorption of fat soluble vitamins
- Synthesis of vitamin D
Prevention is Possible

Low Cholesterol is associated with...

- Increased cancer rates
- Increased violent behavior and aggression
- **Increased anxiety**
- **Increased depression and suicide**
- Increased death rate
- Increased incidence of stroke
- More difficult recovery from drug addiction
- Increased rate of school suspensions
• 42 patients (40.5 y/o) with dietary intake of Omega 3 < 3 gms/day

• DBPC 1.8 gms EPA .4gms DHA Omega 3 supplements or placebo for 8 weeks

• Celexa 20-40mg

• Higher proportion of patients achieved full remission in Omega 3 group versus the placebo group
  – 44% versus 18%
Not a Quick Fix

It takes at least 10 weeks for cerebral membranes’ highly unsaturated fatty acid levels to recover following chronic deficiency.

“By modifying natural fats, we have altered the basic building blocks of the human brain – weakening cerebral architecture. And, like unstable buildings that come apart in an earthquake or storm, poorly structured human brains are failing to cope with the mounting stress of modern life.”
Non-Gastrointestinal Manifestations of Celiac Disease

Most common presentation of age: older child to adult

- **Nutrient malabsorption**
- Iron deficiency
- Short stature
- Hair Loss
- Dermatitis Herpetiformis
- Irritability and behavioral changes
- Liver enzyme elevation

- Delayed puberty (no menstrual cycle)
- Infertility
- Osteoporosis/osteopenia
- Malnutrition
- **Fatigue**
- **Depression**
Deficiencies in Celiac Disease

When a disorder such as Celiac Disease (CD) affects the intestine, the absorption of almost all elements is impaired.

- Essential fatty acids
- Iron
- Fat soluble vitamins (A,D,E,K)
- Magnesium
- Folic Acid
- B Vitamins
- Zinc

One study involving 12 patients presenting with CD and depression who had been on a gluten-free diet for a year without improvement of the depression, showed that malabsorption not only was an issue, but was also inevitable even if the diet was 100% gluten-free.1

Zinc Supplements for Depression

• Serum zinc levels are inversely correlated to depression scale\(^1\)

• Women who took the multivitamin and zinc showed a significant reduction in anger-hostility and depression-dejection versus women who did not\(^2\)

• Patients who received 25mg of Zinc daily had significantly reduced HDRS and BDI scores compared to placebo group\(^3\)

Zinc Supplementation for Depression

- 12 week study with 60 patients with unipolar depression

- 25 mg Zinc daily or placebo

- Zinc supplementation significantly reduced depression scores in antidepressant treatment resistant patients

Zinc in Depression: A Meta-Analysis

• Seventeen studies, measuring peripheral blood zinc concentrations in 1643 depressed and 804 control subjects, were included
  – Zinc concentrations were lower in depressed subjects than control subjects

• Depression is associated with a lower concentration of zinc in peripheral blood

Zinc and Digestive Enzymes

- Zinc increases the activity of digestive enzymes
- Zinc deficiency influences ability to form hydrochloric acid (HCl)
- Zinc deficiency causes insufficient gastric acid production
## Zinc Dependent Enzymes

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<th>Enzyme</th>
<th>Digests</th>
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<tbody>
<tr>
<td>Trypsin</td>
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<td>Lactase</td>
<td>Lactose</td>
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<tr>
<td>Pepsin</td>
<td>Protein</td>
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</tbody>
</table>
Decreased Taste and Smell

- Zinc deficiency alters taste and smell receptors
- Taste is mediated through a salivary zinc dependent enzyme
Zinc Deficiency

- Depression
- Attention difficulties
- Decreased appetite
- Meat avoidance
- Inhibition of EFA metabolism
- Decreased taste
- Change in brain chemistry
- Decreased melatonin
- Nausea
- Bloating GI discomfort
- Decreased pancreatic enzymes
- Vulnerability to stress

Malnourished Minds
Please Note: Although the reference range for vitamin B12 is 200-1100 pg/mL, it has been reported that between 5 and 10% of patients with values between 200 and 400 pg/mL may experience neuropsychiatric and hematologic abnormalities due to occult B12 deficiency; less than 1% of patients with values above 400 pg/mL will have symptoms.

An Epidemic of Misdiagnoses

The underground classic that has saved lives

2nd Edition

SALLY M. PACHOLOK, R.N., B.S.N.
JEFFREY J. STUART, D.O.
Symptoms of $B_{12}$ Deficiency

**MENTAL**
- Irritability
- Apathy
- Personality Changes
- **Depression**
- Memory Loss
- Dementia
- Hallucinations
- Violent Behavior

**PHYSICAL**
- Clumsiness
- Weakness
- Pernicious Anemia
- Chronic Fatigue
- Tremors
- G.I. Problems
- Diminished sense of touch and pain

**BIOCHEMICAL INDIVIDUALITY**

walden behavioral care
lasting recovery for body and mind
B12 for Treatment Resistant Depression

- Both males failed to respond to 3+ trials of antidepressants
- Vegetarians
- Low vitamin B12 levels

- Treatment with 1000 mg/day of Vitamin B12
- Both noticed improvements within 3-4 weeks

‘I Don’t Believe in God, but I Believe in Lithium’
Dosage

• “The dosage makes it either a poison or a remedy.”
  - Paracelsus
  Swiss-German physician, physician, botanist, alchemist, astrologer
  (1493-1541)
Nutritional Lithium and Suicide

- Examined 27 Texas counties from 1978-1987
- Examined lithium levels in tap water in the 18 municipalities in Japan in relation to the suicide standardized mortality ratio
- Austrian study with nationwide sample of 6460 lithium measurements

Overall suicide rate and the suicide mortality ratio were inversely associated with lithium levels

Lithium Cases

- Irritability
- Road rage; waiting room rage
- Family history of mood and substance abuse
- Domestic violence

**PATRICIA**
43 year old therapist
Diagnosed with depression and alcohol abuse at age 18

**Strong family history of alcoholism**
Sober for 10 years
Comparison of 66 elderly patients with Bipolar Disorder who were on chronic lithium therapy and 48 similar patients without recent lithium therapy

Alzheimer's disease was diagnosed in 3 patients (5%) on lithium and in 16 patients (33%) who were not on lithium (P<0.001)

Lithium treatment reduced the prevalence of Alzheimer's disease in patients with bipolar disorder to levels in the general elderly population

Lithium and Cognitive Decline

- Lithium modulates several biological cascades related to dementia/Alzheimer’s.
- Modulating these cascades can decrease amyloid and tau-induced neurotoxicity and cell damage.

Can lithium reduce risk and/or progression from Alzheimer’s?
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Spirituality

- Studies have concluded that people who have faith in religion:
  - cope better with stress
  - suffer from less depression
  - respond better to medical treatment

Nutrition and Behavior

- Double-blind, placebo-controlled trial of nutritional supplements on 231 young adult prisoners, comparing disciplinary offences before and during supplementation for appx. 4 months.

- Those receiving supplements committed an average of **26.3% fewer offences** (n=172).

- Those taking supplements for a minimum of 2 weeks experienced an average of **35.1% reduction** in offenses whereas placebos remained within standard error.

Nutrition and Health

Understanding the role of Nutrition and Health is not Alternative Medicine
Integrative Therapies

- Folate/B12
- Thyroid
- Vitamin D
- Zinc/Magnesium
- Copper
- Celiac Disease
- Homocysteine
- Infections
- Cholesterol
- DHEA
- Food Allergies
- Vitamin Deficiencies
- Mineral Deficiencies
- LITHIUM
- Amino Acids
- Heavy Metals
- Fatty Acids
- Toxins
An Integrative Approach to Mental Health

1. The genetic and biochemical foundations that may predispose to symptoms
2. The dietary habits, pre-symptom history and present
3. The impact of the illness on social and psychological systems
4. The physical and social environment in which the symptoms occur
5. Understanding the patients experience and beliefs of his/her illness
Nutritional medicine as mainstream in psychiatry

Jerome Sarris, Alan C Logan, Tasnime N Akbaraly, G Paul Amminger, Vicent Balanzá-Martínez, Marlene P Freeman, Joseph Hibbeln, Yutaka Matsuoka, David Mischoulon, Tetsuya Mizoue, Akiko Nanri, Daisuke Nishi, Drew Ramsey, Julia J Rucklidge, Almudena Sanchez-Villegas, Andrew Scholey, Kuan-Pin Su, Felice N Jacka, on behalf of The International Society for Nutritional Psychiatry Research

The Emerging Field of Nutritional Mental Health: Inflammation, the Microbiome, Oxidative Stress, and Mitochondrial Function

Bonnie J. Kaplan¹, Julia J. Rucklidge², Amy Romijn², and Kevin McLeod³
Mental Illness may be seen as a reflection of multiple errors in physiology.

If we find the Causes, we may find the Cures.

Prevention is Possible.
INTEGRATIVE THERAPIES FOR DEPRESSION
Redefining Models for Assessment, Treatment, and Prevention

Edited by
James M. Greenblatt, M.D.
Kelly Brogan, M.D.

The Breakthrough Depression Solution
A Personalized 9-Step Method for Beating the Physical Causes of Your Depression

James Greenblatt, MD
Thank you!

James Greenblatt, M.D.
Chief Medical Officer

http://www.waldenbehavioralcare.com/

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http://www.lowdoselithium.org/