Thank you for joining us for

Prevention and Management of Early Cognitive Decline

We will start promptly at 12 noon EST. Please note that until that time, the line will be silent.

Thank you!

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1. All attendees are muted. If you have a technical question, please send a message to the host.

2. Questions: If you have a question for our presenters, please message that to the host. If your question is for a specific presenter, please note that.

Questions will be answered at the end of the webinar as time allows.
Integrative Perspectives Webinar Series
Presents

Prevention and Management of Early Cognitive Decline

November 14, 2012

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EMERSON ECOLOGICS
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Prevention and Management of Early Cognitive Decline

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Cognitive Functions: are mental processes such as thinking, reasoning, learning, problem solving, memory, language, and speech. Decline in any of these areas can be due to many different issues with health.

- Circulation/Vascular Damage
- Infection
- Drugs/intoxication
- Liver disease
Prevention is the best cure...

To do this: reduce risk factors that can cause issues in system that are vital for a healthy body by:
- Hydrating
- Eating healthy
- Taking supplements
- Exercise mentally and physically
- Understanding family history/genetics
Testing

- Mini Mental State Exam (MMSE)
- Blood testing– nutrient deficiencies
- MRI of brain/CT (stroke, tumor, etc.)
- Neurological Exam
- Observation from family, patient
There are a lot of supplements that are touted to help with improving cognition, however, it is vital to know the underlying cause and if the supplement will help address that.

Since the vascular system is the main area that needs support many medications or lifestyle issues are a huge component.

Data is coming out more and more to support naturopathic approaches to helping with cognition, it is vital to start earlier rather than after damage is done for the best success.

Anyone is a candidate to support their memory, however those with a family history of memory related health issues or things like dementia, Alzheimer’s, heart disease, etc. should be even more diligent early.
Trends in Supplementation:

- Vinpocetine
- *Gingko biloba*
- CoQ10 (Ubiquinol)
- PQQ
- Amino Acids
- Omega Fatty Acids
- Vitamin and Mineral Supplements
Vinpocetine

- Vinpocetine is a semisynthetic derivative alkaloid extract from the periwinkle plant (*Vinca minor*).
- In studies, vinpocetine promotes healthy blood flow, glucose transport and healthy red blood cell function in the brain, maintaining optimal cognitive ability.
- Vinpocetine helps modulate sodium and calcium levels in nerve cells and exerts additional neuroprotective actions.
- Further studies revealed Vinpocetine, inhibited in attenuating neointimal hyperplasia and pathological vascular remodeling, at least partially through suppressing ROS production and ERK1/2 activation in smooth muscle cells.
- Vinpocetine improved the cerebrovascular reserve capacity in both patient groups and favorably influenced the cognitive status and general condition of patients with chronic hypoperfusion.
- Anti-inflammatory—targets NF-κappa B.

Clinically, improvement has been seen with Meniere’s, and mainly with Hearing Loss, and Tinnitus if used early or within a week of trauma to the ears.

This is one that would be most likely best used early vs. late stage of cognitive decline.
*Ginkgo biloba* enhances the flow of oxygen and blood to the brain and promoting healthy transmission of nerve impulses.

Gingko has the ability to support healthy capillaries and blood vessels, promote healthy platelet function, and act as a free radical scavenger.

Doses are found to be most beneficial at 200mg and above and improvement was shown at 12 and 24 weeks in studies in cognition.
More to come with Gingko


**Source:** Academic Unit for Psychiatry of Old Age, St. Vincent's Health, Department of Psychiatry, University of Melbourne, Melbourne, Australia.

**Abstract**

- In June 2011 a two-day expert meeting "The Aging Brain" took place in Amsterdam, The Netherlands. The main aim was to discuss the available preclinical and clinical data on Ginkgo biloba special extract EGb 761® in the context of current developments in the diagnosis and treatment of age-related cognitive decline and Alzheimer's disease. 19 dementia experts covering the disciplines bio- and neurochemistry, gerontology, neurology, pharmacology, and psychiatry from Australia, Asia, Europe and North America reviewed available preclinical and clinical data for EGb 761® and identified core topics for future research. Based on a wide range of preclinical effects demonstrated for Ginkgo biloba, EGb 761® can be conceptualized as a multi-target compound with activity on distinct pathophysiological pathways in Alzheimer's disease (AD) and age-related cognitive decline. While symptomatic efficacy in dementia and mild cognitive impairment (MCI) has been demonstrated, interpretation of data from dementia prevention trials is complicated by important methodological issues. Bridging pre-clinical research and clinical research as well as deciding on suitable study designs for future trials with EGb 761® remain important questions. The participants of the "Aging Brain" meeting on Ginkgo biloba special extract EGb 761® concluded that there is plenty of promising data, both pre-clinical and clinical, to consider future research with the compound targeting cognitive impairment in old age as a worthwhile activity.
CoQ10

- CoQ10 has been found to help with a variety of issues related to cognitive decline.
- **Mitochondrial dysfunction** plays a role in an ever increasing range of conditions and is thought to play an important role in age related decline.
- CoQ10 is well established as a mitochondrial enhancer, with proven benefit in the treatment and prevention of numerous cardiovascular and neurological conditions.
- CoQ10 increases the efficiency of mitochondrial ATP production and cellular respiration.
- In addition to primary CoQ10 deficiency, CoQ10 treatment may have some efficacy in the treatment of muscular dystrophy and neurological disorders not directly linked to a primary deficiency in this quinone, but in general terms linked to mitochondrial dysfunction and oxidative stress.
- Study demonstrates that CoQ10 may have a therapeutic importance in the treatment of Alzheimer's type dementia. PMID: 16621054
- Another study noted that Alzheimer's and other neurodegenerative diseases have oxidative imbalances regardless of type of disease thus helping to prevent oxidative stress would be useful.
PQQ

- PQQ which is the shortened name for *Pyrroloquinoline quinone* is taken as a dietary supplement to support mitochondrial health and cellular energy production, and to protect the body from oxidative stress.
- Most notably, PQQ stimulates the spontaneous growth of new mitochondria in aging cells, and activates genes that govern mitochondrial reproduction, protection, and repair.
- PQQ is a novel biofactor, known to influence multiple cellular pathways, including the production of nerve growth factor (NGF).
- PQQ has diverse benefit for mitochondrial function, and has been shown to attenuate mitochondrial oxidative stress as well as to stimulate mitochondrial biogenesis.
- PQQ has neuroprotective properties including protection against glutamate induced toxicity, a pathway common in many neurodegenerative diseases.
- Taken together, PQQ and CoQ10 have shown clinical benefit for improving cognitive performance, such as attention and information processing, and provide mitochondrial support.
Amino Acids and Cognitive Decline

- Age-related decreases in levels of several amino acids compromise cognitive function.
- Amino acids are important intermediates in the production of neurotransmitters in the brain and are involved in neuromodulating activities.
- **l-Tyrosine** is an amino acid naturally synthesized in the body.
  - It is the precursor of the neurotransmitters **l-dopa, dopamine, norepinephrine and epinephrine**, supporting mood and mental clarity
- **dl-Phenylalanine** provides a mixture of two essential amino acids, d-phenylalanine and l-phenylalanine.
  - In the body, l-phenylalanine converts to tyrosine, enhancing neurotransmitter support.
  - A separate pathway allows both d- and l-phenylalanine to support levels of the mood-elevating compound phenylethylamine, a function not provided by l-tyrosine.
Taurine is considered an inhibitory amino acid, helping to maintain healthy glutamate and other excitatory amino acid activity in the brain. This provides neuroprotective action important for maintaining healthy brain cell function.

Acetyl-l-carnitine plays an important role in multiple metabolic pathways in the brain.

- It also contributes to the production of the neurotransmitter acetylcholine and may support dopamine receptor function.
- As a result, acetyl-l-carnitine plays a role in memory, attention, mental clarity, and mood support.

“…Lipoic acid and its derivatives improve the age–associated decline of memory, improve mitochondrial structure and function, inhibit the age–associated increase of oxidative damage, elevate the levels of antioxidants, and restore the activity of key enzymes. In addition, co-administration of LA with other mitochondrial nutrients, such as acetyl-L-carnitine and coenzyme Q10, appears more effective in improving cognitive dysfunction and reducing oxidative mitochondrial dysfunction. Therefore, administrating mitochondrial nutrients, such as LA and its derivatives in combination with other mitochondrial nutrients to aged people and patients suffering from neurodegenerative diseases, may be an effective strategy for improving mitochondrial and cognitive dysfunction.”
Omega-3 fatty acids

- With mild cognitive decline DHA was useful, but more information on dosing to come.

- 2008 study tested 400mg vs. 1800mg of EPA/DHA and did not see differences in cognitive function however, inflammation, vasculature, etc. was not evaluated.

- Some studies suggest that the lower levels of EPA/DHA seen in older adults could be reason for some of the decline, suggesting it is still relevant for cognitive support, beyond the anti-inflammatory and healthy lipid support it provides.

Dosing should be often and EPA/DHA >1000mg
Challenges

- Affordability
- Amount of Pills
- Absorption
- Studies related to long term safety and efficacy are not yet available
- Compliance
  - However, based on what we see in practice with improvement in physical things like neuropathy, energy, etc. it is worth the investment if it prevents something as horrible as dementia.
Regular consumption of fruit and vegetables has been considered to be associated with a reduced risk of dementia and age-associated cognitive decline, although the association is currently unsupported by a systematic review of the literature.

**Methods:** We searched Medline, Embase, Biosis, ALOIS, the Cochrane library, different publisher databases as well as bibliographies of retrieved articles. All cohort studies with a follow-up of 6 months or longer were included if they reported an association of Alzheimer's disease or cognitive decline in regard to the frequency of fruit and vegetables consumption.

**Findings:** Nine studies with a total of 44,004 participants met the inclusion criteria. Six studies analyzed fruit and vegetables separately and five of them found that higher consumption of vegetables, but not fruit is associated with a decreased risk of dementia or cognitive decline. The same association was found by three further studies for fruit and vegetable consumption analytically combined. Conclusion: Increased intake of vegetables is associated with a lower risk of dementia and slower rates of cognitive decline in older age. Yet, evidence that this association is also valid for high fruit consumption is lacking.
Advanced Specialty Lab Testing

- Discovering deficiencies early is the best way to prevent issues early on.
- Nutrient testing to ensure that the supplements that we are giving are actually working for the individual.
- Serum/Plasma/White Blood Cell
- Blood Sugar Testing/Monitoring
- Food Allergy Testing
Vitamins and Minerals

- **ALPHA LIPOIC ACID** – This nutrient protects against the neuronal injury that occurs in the presence of toxic proteins found in brain tissue of Alzheimer’s patients. Research clearly indicates that lipoic acid is a potent neuroprotective antioxidant which strengthens memory and stimulates nerve growth.

- **B VITAMINS** – Folate, Vitamin B6 and B12 are important in methylation processes. Deficiencies in one of these vitamins can raise homocysteine levels which is linked to increased Alzheimer’s risk. Vitamin B1 protects against mitochondrial dysfunction that causes dementia. B12 improves frontal lobe functions such as language, especially in the elderly.

- **CARNITINE** – The amino acid carnitine has potent antioxidant properties. Its role in the transport of fatty acids to the mitochondria explains its beneficial effects on fatigue, which include both physical and mental fatigue. Several trials have demonstrated a consistent improvement in memory, focus and cognition with carnitine supplementation.

- **CHOLINE** – Another member of the B–complex, choline is the precursor molecule for the neurotransmitter acetylcholine, which is intimately involved in memory. Choline deficiency can induce mitochondrial dysfunction in the brain that clinically presents as cognitive impairment.

- **CHROMIUM** – In a placebo-controlled, double-blind trial, chromium supplementation for twelve weeks enhanced cerebral function in older adults, possibly as a downstream effect of improved glucose disposal in patients with insulin resistance.

- **COPPER** – Intracellular copper deficiency increases the formation of amyloid deposits in the brain. Specifically, copper accumulates in amyloid plaques while remaining deficient in neighboring brain cells indicating that copper deficiency is a plausible cause of Alzheimer’s.

- **GLUTATHIONE** – This antioxidant is used up faster in brain tissue in the presence of choline deficiency.

- **GLUTAMINE** and **ASPARAGINE** – Both act as neurotransmitters in the brain.
INOSITOL – A member of the B–complex of vitamins, inositol regulates cell membrane transport, thus explaining its key interaction with several hormone and regulatory functions. Research suggests it can protect against the formation of abnormally folded toxic proteins seen in Alzheimer’s patients. Inositol treatment also has beneficial effects on depression and anxiety.

OLEIC ACID – This fatty acid found primarily in olive oil and is the precursor to oleamide, which interacts with several neurotransmitters and has demonstrated anti–depressant like properties. Oleic acid also facilitates absorption of vitamin A into cells.

SERINE – This amino acid is the major component of phosphatidylserine, an integral part of cell membranes in the brain. Phosphatidylserine increases the release of several neurotransmitters, including dopamine, serotonin, acetylcholine and epinephrine, thus improving the rate at which mental processes occur, without the hyperactivity or compulsive behavior that often occurs with drugs that stimulate a single neurotransmitter.

VITAMIN A – In the Physician’s Health Study II, vitamin A supplementation (50mg) improved cognition and verbal memory in men. Short term (1 year) effects of cognitive function were not seen, but significant benefit occurred in those on long–term treatment (18 years.)

VITAMIN C – Next to adrenal glands, nerve endings contain the highest levels of vitamin C in the body. High intakes of vitamin C are associated with lower risk of Alzheimer’s disease.

VITAMIN E – In addition to antioxidative properties, vitamin E reduces death to cells in the hippocampus and protects brain from glutamate toxicity. High dietary intake of vitamin E may lower Alzheimer’s risk.

ZINC – Low functional status of zinc is linked to negative alterations of the immune–inflammatory system, which can cause depression, impair learning and memory and a reduce neurogenesis. Zinc also regulates synaptic plasticity.
Summary

- Supplementing with focus on nutrient deficiencies or oxidative stress, brain profusion
- Evaluate possible imbalances in amino acids—could be related to poor diet
- Understanding the underlying cause—vascular, diabetes, genetic
- Treating early for best outcomes
- Doses that are substantial and possibly combo formulas to help with compliance
References

References

Any Questions?

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PREVENTION AND MANAGEMENT OF EARLY COGNITIVE DECLINE

ALYSON ADAMS, L.AC., DIPL. O.M.

A Chinese Medicine Perspective
Essence is a hereditary energy which determines a person's constitution. It determines growth, reproduction, development, sexual maturation, conception, and pregnancy.

Cognitive Health lies in the strength of Kidney Essence or “Jing”:

- Essence is a hereditary energy which determines a person's constitution.
- Determines growth, reproduction, development, sexual maturation, conception, and pregnancy.
Essence “Jing” Composed of two materials

**Pre-Heaven Essence**
- Determines each person’s basic constitutional make-up, strength and vitality
- Inherited from parents at conception

**Post-Heaven Essence**
- Originates from food
- Produced by Spleen and Stomach energy after birth
Two Components of Essence

- **Post-Heaven Qi**
  - Spleen
  - Stomach

- **Pre-Heaven Qi**
  - Kidney
Pathogenesis of early cognitive decline is a mixture of deficiency and excess conditions represented by:

- Kidney essence “Jing” deficiency
- Blockage of the brain channel by blood stagnation
- A combination of both

The brain shows the symptoms, but the cause lies in the kidneys.
Treatment Principles

- Tonify Kidney energy
- Eliminate Phlegm
- Remove Blood Stagnation
- Restore Cognition
- Promote Perception
Acupuncture Prescriptions

- **PC6** - Nourishes the heart, calms the shen “spirit”, promotes smooth circulation of Qi and blood
- **GV26** - Opens up the sensory orifices, stimulates the brain, awakens spirit
- **Combo of two** - Increases contractile strength of heart and cardiac output of blood circulation to brain
- **Sp6** - Nourishes kidney, tonifies jing and marrow to improve function of the brain

Differential Diagnosis must be made with each patient. These points may be used specifically to enhance brain health.
Acupuncture Prescriptions

Extra Point Sishencong and GV20

Stimulate blood flow to the head and calm the spirit
Chinese Herbal Medicine

- **Yin Guo Ye**
  - Folium Ginkgo

- **Shi Chang Pu**
  - Rhizoma Acori
Chinese Herbal Medicine

- **Yin Guo Ye**
  - Folium Ginkgo
  - Concluded to be “safe” and capable of “improving the cognitive performance and the social functioning of demented patients for 6 months to 1 year.” JAMA October 1997

- **Shi Chang Pu**
  - Rhizoma Acori
  - Dose-dependent effect on improving cognition and memory. Opens up the orifices awakens the spirit
Chinese Herbal Medicine

Dang Gui
- Radicis Angelicae Sinensis

Dan Shen
- Radix Salviae Miltiorrhizae
Chinese Herbal Medicine

**Dang Gui**
- Radicis Angelicae Sinensis
  - Improve blood circulation
  - Decrease blood viscosity, improve hemorrhheological changes in “blood stagnation”
  - Improve microcirculation, thus delivering oxygen and essential nutrients to the brain to ensure optimal performance of brain cells

**Dan Shen**
- Radix Salviae Miltiorrhizae
Enhance Memory—Evergreen Herbs

Bai Zi Ren (Semen Platycladi)
Dan Shen (Radix Salviae Miltiorrhizae)
Shi Chang Pu (Rhizoma Acori)
Suan Zao Ren (Semen Zizyphi Spinosae)
Dang Gui (Radicis Angelicae Sinensis)
Tian Men Dong (Radix Asparagi)
Fu Ling (Poria)
Wu Wei Zi (Fructus Schisandraceae)
Chinesis)
Jie Geng (Radix Platycodonis)
Xuan Shen (Radix Scrophulariae)
Mai Men Dong (Radix Ophiopogonis)
Yin Guo Ye (Folium Ginkgo)
Sheng Di Huang (Radix Rehmanniae)
Yuan Zhi (Radix Polygalae)

The herbal ingredients within this formula help to tonify the Heart and Kidney, invigorate blood circulation to the head, and open orifices to improve alertness.
A recent 2012 study examined the effects of Chinese medicine to treat early stages of Alzheimer disease.

- **12 week study** - Chinese herbal medicine group, donepezil group, control group

- **Results**: Both the Chinese Medicine group and donepezil group improved from baseline.

- **Donepezil group** had greater side effects than the Chinese Medicine group.
Lifestyle and Nutrition

- Qi Gong & Tai Chi
- Maintain balance between work, exercise, rest and relaxation
- Avoid an overly stressful or hectic lifestyle
- Support your Spleen Qi-B-vitamins to support energy and brain function
Just a reminder...

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BRAIN HEALING
DR. DANIEL KALISH
BRAIN HEALING WITH AMINO ACIDS
HEALING THE BODY

Body System 1: Stress Response Brain and Adrenals

- Decreased immune response

Usually precipitated by one of the following events:
- death
- divorce
- childbirth (usually 2nd or 3rd)
- overwork

Body System 2: GI Pathogen acquired, Food intolerances, Leaky gut

Body System 3: Detox system overwhelmed

TOXINS
CONDITIONS IMPACTED BY SEROTONIN

Top 10 list for serotonin:

1. Weight loss
2. Sleep problems
3. Depression
4. Anxiety
5. Migraines
6. GI problems (constipation)
7. Unstable moods
8. PMS
9. Difficulty experiencing pleasure
10. Irritability, aggressive behavior

As James Brown would say - “I feel good!”
## CONDITIONS IMPACTED BY DOPAMINE

<table>
<thead>
<tr>
<th>Rank</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Weight loss</td>
</tr>
<tr>
<td>2</td>
<td>Energy</td>
</tr>
<tr>
<td>3</td>
<td>Depression</td>
</tr>
<tr>
<td>4</td>
<td>Mood</td>
</tr>
<tr>
<td>5</td>
<td>Attention, focus and concentration</td>
</tr>
<tr>
<td>6</td>
<td>Reward center stimulation</td>
</tr>
<tr>
<td>7</td>
<td>Tremors, shaking, restless leg</td>
</tr>
<tr>
<td>8</td>
<td>Addictive behaviors – drugs and alcohol</td>
</tr>
<tr>
<td>9</td>
<td>Compulsive tendencies (OCD)</td>
</tr>
<tr>
<td>9</td>
<td>Self confidence, self esteem, self worth</td>
</tr>
<tr>
<td>10</td>
<td>Dopamine in the mesolimbic pathway increases general arousal and goal directed behaviors and decreases latent inhibition; all three effects increase the creative drive of idea generation</td>
</tr>
</tbody>
</table>

“Hi-ho, hi-ho, it’s off to work I go!”
PRIMARY CAUSES OF DYSFUNCTION

• Physical damage to the neuron bundle
• Neurotoxicity (drugs, heavy metal toxicity) – cause neuron death, leading to ineffective firing
• Nutritional deficiencies – low protein, poor quality, refined diet
• Inborn genetic defects
WHAT STRUCTURE OF THE NEURON DO WE IMPACT WITH AMINO ACIDS?

• Reuptake pumps – the same part of the brain impacted by SSRI medications

• In the literature you’ll see the same structures called OCT 2 transporters or gates - these transporters change their three dimensional shape to move serotonin from the synapse back into the pre-synaptic neuron

• If there is post synaptic neuron damage NT levels must be increased beyond what is possible with diet alone
GATES, TRANSPORTERS, REUPTAKE PUMPS, OR REUPTAKE PORTS

- We’re all familiar with the term “reuptake” from “Selective Serotonin Reuptake Inhibitors,” a name of a commonly used class of anti-depressants.

- The SSRI medications, along with other reuptake inhibitors that act on norepinephrine or dopamine all function using the same basic mechanism - they block these reuptake pumps, forcing more neurotransmitters to remain in the synapse, albeit in many different ways.

- Amino acid supplements including 5-HTP and tyrosine can open the reuptake ports and flood the pre-synaptic neuron with serotonin and dopamine, resupplying the vesicles.
TRANSPORTERS

![Diagram of serotonin transport](image-url)
The Serotonin Neuron

transporter
Drugs do nothing to increase the total number of neurotransmitter molecules in the brain.

Slide courtesy of the National Institute on Drug Abuse.
From normal levels to excess serotonin in the synapse to a depleted state.

Clearly this is not a good long term treatment model and the long term research bears out the danger of these drugs.

Depletion of the pre-synaptic neuron vesicles

Depletion of neurotransmitters in the synapse

Graphic courtesy of the National Institute on Drug Abuse
DRUGS VS. AMINO ACIDS

- The reuptake drugs change the position or location of the neurotransmitters - they do not increase the overall amount of neurotransmitters in the system.

- Amino acid therapy increases the level of neurotransmitters in the synapse and opens the reuptake pumps to bring up the levels of neurotransmitters inside the neuron also.

- Cocaine, Methamphetamine, Adderall, Ritalin and even Ecstasy act in a similar fashion to anti-depressant medications; they increase the neurotransmitters in the synapse by shutting these reuptake pumps down.
Dopamine phase 2 or 3 at the transporter. Competitive inhibition in place.

Serotonin phase 1 at the transporter. Gate regulation in place.

GATE-LUMEN REGULATION

GATE OPEN

GATE PARTIALLY CLOSED

LUMEN

To the urine

To the urine
THE SEROTONIN AND CATECHOLAMINE TREATMENT BASICS

FUNCTION AS ONE SYSTEM (intertwined)

- Giving only:
- Serotonin precursors deplete catecholamines
- Dopamine precursors depletes serotonin
BALANCED AMINO ACIDS

- Concept of addressing both the catecholamine and serotonin system simultaneously
Safe daily maximum dosages include:

- L-Tyrosine: 3000 mg
- 5-HTP: 300 mg
- Vitamin C: 1000 mg
- Vitamin B6: 75 mg
- Calcium: 300 mg
- Folate: 200 mcg
BALANCED AMINO ACIDS

Program to control appetite
L-Tyrosine 1000 mg 3x day with meals
5-HTP 100 mg 3x day with meals

Program to improve sleep
5-HTP 100-300 mg before sleep start gradually build up
Match with Tyrosine 1000-3000 mg in the morning
Program to improve focus/concentration
L-Tyrosine 1000 mg 3x day with meals
5-HTP 300 mg before sleep

Program to correct drug induced nutrient loss
L-Tyrosine 1000 mg 3x day with meals
5-HTP 100 mg 3x day with meals
## CO-FACTORS AS IMPORTANT AS AMINO’S

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Amount</th>
</tr>
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<tbody>
<tr>
<td>L-Cysteine HCl</td>
<td>4,500 mg</td>
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<tr>
<td>Selenium</td>
<td>400 mcg</td>
</tr>
<tr>
<td>Folate</td>
<td>400 mcg</td>
</tr>
<tr>
<td>Vitamin C</td>
<td>1000 mg</td>
</tr>
<tr>
<td>Vitamin B6</td>
<td>75 mg</td>
</tr>
<tr>
<td>Calcium</td>
<td>300 mg</td>
</tr>
<tr>
<td>Folate</td>
<td>200 mcg</td>
</tr>
</tbody>
</table>
Daniel Kalish, D.C.

Contact us at:

• KalishResearch.com
• 800-616-7708
• Office@drkalish.com
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Stay tuned for the details of our 2013 webinar series!

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