There are eight B-group vitamins (all water some alcohol soluble), which are essential for bodily functions such as energy production, cellular metabolism, chromosome maintenance, immunity, nerve function, thinking modulation, psychological stability, oxygen transfer and utilization and making red blood cells. These water-soluble vitamins are easily destroyed when cooking or processing food. If planning a pregnancy, women should consider taking folic acid (folate) supplements to reduce the risk of conditions such as spina bifida in the baby or other genetic deformities. The 4 Ds will guide you to deficiency.
These vitamins are not made by the body and they must be in our nutrition. There are now 8 medically accepted B vitamins but there were over 20 once discovered. Royal Lee said that the water and alcohol B vitamins he called them the Vitamin Gs. This is valuable knowledge for nutritionists.

http://syntheticissinthetic4u.com

SYNTHETIC IS SINTHETIC

Pharmacology Fact: To Use a SYNTHETIC anything is an Insult to the Body

http://syntheticissinthetic4u.com/

B vitamins are no exemption. A Synthetic B Vitamin is an insult to the body. Please use Natural.

Read more
# Classic B vitamin molecular functions

<table>
<thead>
<tr>
<th>Vitamin</th>
<th>Name</th>
<th>Structure</th>
<th>Molecular Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vitamin B₁</td>
<td>Thiamine</td>
<td><img src="image" alt="Thiamine structure" /></td>
<td>Thiamine plays a central role in the generation of energy from carbohydrates. It is involved in RNA and DNA production, as well as nerve function. Its active form is a coenzyme called Thiamine pyrophosphate (TPP), which takes part in the conversion of pyruvate to acetyl Coenzyme A (CoA) in metabolism.(^1)</td>
</tr>
<tr>
<td>Vitamin B₂</td>
<td>Riboflavin</td>
<td><img src="image" alt="Riboflavin structure" /></td>
<td>Riboflavin is involved in the energy production for the electron transport chain, the citric acid cycle, as well as the catabolism of fatty acids (beta oxidation)(^2)</td>
</tr>
<tr>
<td>Vitamin B₃</td>
<td>Niacin</td>
<td><img src="image" alt="Niacin structure" /></td>
<td>Niacin is composed of two structures: nicotinic acid and nicotinamide. There are two co-enzyme forms of niacin: nicotinamide adenine dinucleotide (NAD) and nicotinamide adenine dinucleotide phosphate (NADP). Both play an important role in energy transfer reactions in the metabolism of glucose, fat and alcohol.(^3) NAD carries hydrogens and their electrons during metabolic reactions, including the pathway from the citric acid cycle to the electron transport chain. NADP is a coenzyme in lipid and nucleic acid synthesis (^4)</td>
</tr>
<tr>
<td>Vitamin B₅</td>
<td>Pantothenic acid</td>
<td><img src="image" alt="Pantothenic acid structure" /></td>
<td>Pantothenic acid is involved in the oxidation of fatty acids and carbohydrates. Coenzyme A, which can be synthesised from pantothenic acid, is involved in the synthesis of amino acids, fatty acids, ketones, cholesterol,(^5) phospholipids, steroid hormones, neurotransmitters (such as acetylcholine) and antibodies.(^6)</td>
</tr>
<tr>
<td>Vitamin B₆</td>
<td>Pyridoxine</td>
<td><img src="image" alt="Pyridoxine structure" /></td>
<td>Pyridoxine is usually stored in the body as pyridoxal 5'-phosphate (PLP), which is the co-enzyme form of vitamin B₆. Pyridoxine is involved in the metabolism of amino acids and lipids; in the synthesis of neurotransmitters (^7) and hemoglobin, as well as in the production of nicotinic acid (vitamin B₃).(^8) Pyridoxine also plays an important role in gluconeogenesis</td>
</tr>
</tbody>
</table>
### Vitamin B7: Biotin

Biotin plays a key role in the metabolism of lipids, proteins and carbohydrates. It is a critical co-enzyme of four carboxylases: acetyl CoA carboxylase, which is involved in the synthesis of fatty acids from acetate; propionyl CoA carboxylase, involved in gluconeogenesis; β-methylcrotonyl CoA carboxylase, involved in the metabolism of leucin; and pyruvate CoA carboxylase, which is involved in the metabolism of energy, amino acids and cholesterol.\[^9\]

### Vitamin B9: Folic Acid

Folic acid acts as a co-enzyme in the form of tetrahydrofolate (THF), which is involved in the transfer of single-carbon units in the metabolism of nucleic acids and amino acids. THF is involved in pyrimidine nucleotide synthesis, so it is needed for normal cells division, especially during pregnancy and infancy, which are times of rapid growth. Folate also aids in erythropoiesis, the production of red blood cells.\[^10\]

### Vitamin B12: Cobalamin

Vitamin B\(_{12}\) is involved in the cellular metabolism of carbohydrates, proteins and lipids. It is essential in the production of blood cells in bone marrow, nerve sheaths and proteins.\[^11\] Vitamin B\(_{12}\) functions as a co-enzyme in intermediary metabolism for the methionine synthase reaction with methylcobalamin, and the methylmalonyl CoA mutase reaction with adenosylcobalamin\[^{12}\].

### Classic B vitamin deficiency symptoms

Several named vitamin deficiency diseases may result from the lack of sufficient B-vitamins. Deficiencies of other B vitamins result in symptoms that are not part of a named deficiency disease.

<table>
<thead>
<tr>
<th>Vitamin</th>
<th>Name</th>
<th>Deficiency effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vitamin B(_{1})</td>
<td>thiamine</td>
<td>Deficiency causes beriberi. Symptoms of this disease of the nervous system include weight loss, emotional disturbances, Wernicke's encephalopathy (impaired sensory perception), weakness and pain in the limbs, periods of irregular heartbeat, and edema (swelling of bodily tissues). Heart failure and death may occur in advanced cases. Chronic thiamine deficiency can also cause Korsakov's syndrome, an irreversible psychosis characterized by amnesia and confabulation.</td>
</tr>
<tr>
<td>Vitamin B(_{2})</td>
<td>riboflavin</td>
<td>Deficiency causes ariboflavinosis. Symptoms may include cheilosis (cracks in the lips), high sensitivity to sunlight, angular cheilitis, glossitis (inflammation of the tongue), seborrheic dermatitis or pseudo-syphilis (particularly affecting the scrotum or labia majora and the mouth), pharyngitis (sore throat), hyperemia, and</td>
</tr>
</tbody>
</table>
edema of the pharyngeal and oral mucosa.

| Vitamin B<sub>3</sub> | niacin | Deficiency, along with a deficiency of tryptophan causes pellagra. Symptoms include aggression, dermatitis, insomnia, weakness, mental confusion, and diarrhea. In advanced cases, pellagra may lead to dementia and death (the 3(+1) Ds: dermatitis, diarrhea, dementia, and death). |
| Vitamin B<sub>5</sub> | pantothenic acid | Deficiency can result in acne and paresthesia, although it is uncommon. |
| Vitamin B<sub>6</sub> | pyridoxine | Deficiency may lead to microcytic anemia (because pyridoxyl phosphate is the cofactor for heme synthesis), depression, dermatitis, high blood pressure (hypertension), water retention, and elevated levels of homocysteine. |
| Vitamin B<sub>7</sub> | biotin | Deficiency does not typically cause symptoms in adults but may lead to impaired growth and neurological disorders in infants. Multiple carboxylase deficiency, an inborn error of metabolism, can lead to biotin deficiency even when dietary biotin intake is normal. |
| Vitamin B<sub>9</sub> | folic acid | Deficiency results in a macrocytic anemia, and elevated levels of homocysteine. Deficiency in pregnant women can lead to birth defects. Supplementation is often recommended during pregnancy. Researchers have shown that folic acid might also slow the insidious effects of age on the brain. |
| Vitamin B<sub>12</sub> | cobalamin | Deficiency results in a macrocytic anemia, elevated homocysteine, peripheral neuropathy, memory loss and other cognitive deficits. It is most likely to occur among elderly people, as absorption through the gut declines with age; the autoimmune disease pernicious anemia is another common cause. It can also cause symptoms of mania and psychosis. In rare extreme cases, paralysis can result. |

Classic B vitamin side effects if overdosed or use synthetic

Because water-soluble B vitamins are eliminated in the urine, taking large doses of certain B vitamins may produce transient effects.

<table>
<thead>
<tr>
<th>Vitamin</th>
<th>Name</th>
<th>Tolerable Upper Intake Level</th>
<th>Harmful effects</th>
</tr>
</thead>
</table>


<table>
<thead>
<tr>
<th>Vitamin</th>
<th>Name</th>
<th>Allowance</th>
<th>Toxicity Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vitamin B₁</td>
<td>thiamine</td>
<td>None[13]</td>
<td>No known toxicity from oral intake. There are some reports of anaphylaxis caused by high-dose thiamine injections into the vein or muscle. However, the doses were greater than the quantity humans can physically absorb from oral intake.[13]</td>
</tr>
<tr>
<td>Vitamin B₂</td>
<td>riboflavin</td>
<td>None.[14]</td>
<td>No evidence of toxicity based on limited human and animal studies. The only evidence of adverse effects associated with riboflavin comes from in vitro studies showing the production of reactive oxygen species (free radicals) when riboflavin was exposed to intense visible and UV light.[14]</td>
</tr>
<tr>
<td>Vitamin B₃</td>
<td>niacin</td>
<td>35 mg/day from supplements, drugs or fortified food[15]</td>
<td>Intake of 3000 mg/day of nicotinamide and 1500 mg/day of nicotinic acid are associated with nausea, vomiting, and signs and symptoms of liver toxicity. Other effects may include glucose intolerance, and (reversible) ocular effects. Additionally, the nicotinic acid form may cause vasodilatory effects, also known as flushing, including redness of the skin, often accompanied by an itching, tingling, or mild burning sensation, which is also often accompanied by pruritus, headaches, and increased intracranial blood flow, and occasionally accompanied by pain.[15] Medical practitioners prescribe recommended doses up to 2000 mg per day of niacin, usually in time release format, to combat arterial plaque development in cases of high lipid levels.[16]</td>
</tr>
<tr>
<td>Vitamin B₅</td>
<td>pantothenic acid</td>
<td>None</td>
<td>No known toxicity</td>
</tr>
<tr>
<td>Vitamin B₆</td>
<td>pyridoxine</td>
<td>100 mg/day from supplements, drugs or fortified food[17]</td>
<td>Intake of more than 1000 mg/day is associated with peripheral sensory neuropathy; other effects are unconfirmed: dermatological lesions [causal association is unlikely]; B₆ dependency in newborns [causal association is also unlikely].[17]</td>
</tr>
<tr>
<td>Vitamin B₇</td>
<td>biotin</td>
<td>None</td>
<td>No known toxicity</td>
</tr>
<tr>
<td>Vitamin</td>
<td>Source</td>
<td>Dosage</td>
<td>Effect</td>
</tr>
<tr>
<td>-------------</td>
<td>-----------------</td>
<td>--------------</td>
<td>------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Vitamin $B_9$</td>
<td>folic acid</td>
<td>1 mg/day</td>
<td>Masks $B_{12}$ deficiency, which can lead to permanent neurological damage $^{[18]}$</td>
</tr>
<tr>
<td>Vitamin $B_{12}$</td>
<td>cyanocobalamin</td>
<td>None</td>
<td>Acne-like rash [causality is not conclusively established]. $^{[19][20]}$</td>
</tr>
</tbody>
</table>

Some B vitamin sources

[Image: Yoga woman with text about B vitamins]

**Quantum Digestion**

*You are not what you Eat*

*You are What You Absorb*

ALTERNATIVE IDEAS OF VITAMIN B + G

- **Vitamin B₁**: Thiamine
- **Vitamin G--B₂**: Riboflavin
- **Vitamin B₃**: Niacin
- **Vitamin G--B₄**: Niacinamide or adenine, a nucleobase, is synthesized by the human body.[35]
- **Vitamin B₅**: Pantothenic Acid
- **Vitamin G--B₆**: Pyridoxine
- **Vitamin G--B₇**: Folic Acid
- **Vitamin B₈**: Co-Enzyme A, adenosine monophosphate, is synthesized by the human body.
- **Vitamin G--B₉**: para-aminobenzoic acid (PABA)
- **Vitamin G--B₁₀**: Biotin
- **Vitamin G--B₁₁**: pteryl-hepta-glutamic acid—chick growth factor, which is a form of folic acid. Later found to be one of five folates necessary for humans; also known as vitamin S or factor S.
- **Vitamin B₁₂**:
- **Vitamin G--B₁₃**: Choline, orotic acid, now known not to be a vitamin.
- **Vitamin B₁₄**: Betaine.
- **Vitamin G--B₁₅**: Pangamic acid
- **Vitamin B₁₆**: Oxythiamine or dimethylglycine (DMG)
- **Vitamin B₁₇**: nitrilosides, amygdalin or Laetrile. These substances are found in a number of seeds, sprouts, beans, tubers, and grains. While toxic in large quantities, proponents claim that it is effective in cancer treatment and prevention despite a lack of scientific evidence.[36]
- **Vitamin B₁₈**: FAD
- **Vitamin G--B₁₉**: Flavin
- **Vitamin B₂₀**: carnitine
- **Vitamin B₂₁**: Inositol
- **Vitamin B₂₂**: often claimed as an ingredient of Aloe vera extracts but also in many other foods. Claimed by one source to be vitamin B₁₂b-δ.[citation needed]

**IT IS IMPORTANT WE GET NATURAL VITAMINS, NOT SYNTHETIC. IT IS ALSO IMPORTANT THAT WE ABSORB THE VITAMINS. HERE IS HOW TO LEARN ABOUT ABSORPTION.**

http://www.downloads.imune.net/medicalbooks/Quantum%20Digestion%20-%20FOSSIL%20LAP.pdf

https://www.youtube.com/watch?v=NBDLOpTDhbE
Fat Soluble Vitamins (A, D, E, K) need to dissolve into Fat in order to be absorbed. In the Small Intestine Fat is broken down by Liver Bile Acids this allows for the vitamins to dissolve into the Fat. The Fat stores the Vitamins for use.

B Vitamins (water soluble) absorb by attaching to Proteins and are broken down by stomach acids then move to the Ileum for absorption.

Whey Protein Isolate Enables Vitamin Transport

Water Soluble vitamins, like Vitamin C, transport through the Jejunum and into the bloodstream, they readily pass through the body daily and must be replenished.

Extra Virgin Olive Oil Blend Enables Vitamin Transport

Unique Superfruit Blend Enabled Vitamin Transport

Large Intestine

- **Solid materials** pass through the large intestine.
- These are **undigestible** solids (fibers).
- Water is absorbed.
- **Vitamins K and B** are reabsorbed with the water.
- **Rectum**- solid wastes exit the body.
**B12 Absorption Simplified**

**Food**
B12 is tightly attached to animal protein in animal products.

**Mouth**
Saliva contains carrier proteins that attach to B12 in the stomach to protect B12 from destruction by stomach acids.

**Liver**
60% of B12 stored, 30% stored in muscles.

**Gallbladder**
Releases B12 and bile into the intestines in response to a fatty meal.

**Enterohpatic Circulation**
Blood vessels take nutrients from the intestines to the liver. This is how the body conserves B12. It is constantly reabsorbed and stored in the body.

**Stomach**
1. Strong acids free B12 from animal protein.
2. Parietal cells make Intrinsic Factor (IF) that helps B12 to be absorbed.

**Panaceas**
(Behind the stomach)
Secretes enzymes that digest carrier proteins to free B12 and allow it to bind with IF into the duodenum.

**Duodenum**
Alkaline environment in the beginning of the small intestine where B12 attaches to Intrinsic Factor (IF).

**Colon**
Lots of active B12 is made by bacteria but it is not absorbed and passes out with feces.

**Ileum**
End of the small intestine where 1.5–2 mcg of the B12-IF complex is absorbed into the blood every 4–6 hours. This is also where 1% of free B12 is absorbed and where B12 is reabsorbed with bile for storage in the liver.

**Anus**
The **good bacteria** in our gut help us to digest food, absorb nutrients, and keep a check on the bad bacteria. If allowed to multiply in an uncontrolled manner, the **bad bacteria** can cause a range of diseases.

**Disease Starts in the GUT**

**Heal The Gut Cure The Disease**

*Clostridium difficile* (above) Most harmful following a course of antibiotics when it is able to proliferate.

*Campylobacter* C. jejuni and C. coli are the strains most commonly associated with human disease. Infection usually occurs through the ingestion of contaminated food.

*E. coli* A common cause of post-surgical infections.

Compiled by Sarah Spickernell

**Bifidobacteria** (pictured above) The various strains help to regulate levels of other bacteria in the gut, modulate immune responses to invading pathogens, prevent tumour formation and produce vitamins.

**Escherichia coli** Several types inhabit the human gut. They are involved in the production of vitamin K2 (essential for blood clotting) and help to keep bad bacteria in check. But some strains can lead to illness.

**Lactobacilli** Beneficial varieties produce vitamins and nutrients, boost immunity and protect against carcinogens.
SUGAR FED BAD BACTERIA IN THE GUT CAN TAKE OVER YOUR BRAIN LIKE AN ALIEN PRESENCE

http://indavideo.hu/video/Bad_Gut_Bacteria_make_for_Obese_Patients

http://www.downloads.imune.net/medicalbooks/RULES%20FOR%20THE%20STOMACH%20Disease%20starts%20in%20the%20gut.pdf

http://indavideo.hu/video/Bad_Bacteria_Take_over_the_Brain

http://www.downloads.imune.net/medicalbooks/Bad%20Bowel%20Bacteria%20can%20take%20control%20of%20your%20Brain.pdf
### Vitamin B Deficiency

Vitamin B deficiencies, such as B1, B2, B3 B6 and B12 have the ability to produce symptoms of neuropsychiatric disorders.

<table>
<thead>
<tr>
<th>Symptoms of Vitamin B Deficiency</th>
<th>Symptoms of Neuropsychiatric Disorders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fears</td>
<td>Morbid Fears</td>
</tr>
<tr>
<td>Fatigue</td>
<td>Severe Fatigue</td>
</tr>
<tr>
<td>Depression</td>
<td>Depression</td>
</tr>
<tr>
<td>Paranoia</td>
<td>Paranoia</td>
</tr>
<tr>
<td>Confusion</td>
<td>Confusion</td>
</tr>
<tr>
<td>Hostility</td>
<td>Anger</td>
</tr>
<tr>
<td>Rage</td>
<td>Suicidal Tendencies</td>
</tr>
<tr>
<td>Anxiety</td>
<td>Anxiety</td>
</tr>
</tbody>
</table>

- **FOLATE**
  - **DECREASED**
    - proximal SI damage
    - low dietary intake
    - drugs eg phenytoin
  - **INCREASED**
    - bacterial overgrowth
    - pancreatic insufficiency
    - high dietary intake
    - vitamin supplementation

- **COBALAMIN**
  - **DECREASED**
    - distal SI damage
    - bacterial overgrowth
    - pancreatic insufficiency
    - hereditary malabsorption
    - low dietary intake
  - **INCREASED**
    - high dietary intake
    - vitamin supplementation
    - immunoproliferative disease
**Tongue Body Cracks**

**Short Horizontal Cracks**
- Vitamin B6 Deficiency

**Long Horizontal Cracks**
- Vitamin B6, B12, B2 Deficiency,

**Transverse Cracks On the Sides of the Tongue**
- Vitamin B6, B12, B3 Deficiency,

**Transverse Cracks Behind Tip**
- Vitamin B6, B12, B2, B3 Deficiency.

**Very Deep Ventral Cracks With Other Smaller Cracks**
- Vitamin B6, B12, B2, B3, B5 Deficiency,
Ulcerated Tongue Body

- Suspect acid alkaline imbalance, vitamin K deficiency, Iron excess,

Numb Tongue Body

- Manganese deficiency, Tardive Dyskinesia

Loose Tongue Body

- Manganese deficiency, Tardive Dyskinesia, loss of muscle tone, dystonia
Fungus Vitamin B6 deficiency

Red and Beefy -- Pantothenic Acid B5 deficiency

B12 deficiency
LEARN MORE ABOUT TONGUE DIAGNOSIS

HOW MUCH VITAMIN B IS TOO MUCH?

The study made it clear benefits only apply to those with high homocysteine levels. Participants in the two-year study took three standard B vitamins — B6, B12 and folic acid. But the doses were well in excess of recommended daily amounts (RDAs) — they were having 20mg of B6 (the RDA is 1.4mg for men, 1.2mg for women), 500mcg of B12 (RDA, 1.5mcg) and 800mcg of folic acid (RDA, 200mcg). The question is: could these high doses have harmful effects? During the trial there were no differences in the side-effects between those taking the B vitamins and the placebo, but some experts believe more research is needed before anyone starts taking these doses. They should certainly not be taken without consulting a GP.

If you’re concerned about your intake of other B vitamins, ensure that you get an adequate amount by fortifying your diet with at least one-two servings of foods that are listed in each column. This will have you raring to go, advises registered dietician, Geeta Shenoy.
The symptoms of a deficiency of a nutrient is often the same as the symptoms caused by an excess.

Too Little Dietary Protein can cause Baldness, and by the Law of Dualism Too Much Protein or a high Protein (Low Crab) Diet can also cause Baldness.

The same symptoms of a deficiency can be caused by an excess.

Maybe you should try Natural Vitamins not Synthetic.
ARE YOU AT RISK?

1. **Low dietary intake:** “Veganism, lacto-ova vegetarianism, low animal based food intake are the main reasons for vitamin B12 deficiency. Vegetarian dietary habit has been found to be a substantial risk factor for B12 deficiency in the Indian population. Evidence indicates that low intake of animal-source foods, among lacto-ovo vegetarians causes vitamin B12 depletion,” says Dr Misra. Simple dietary measures like drinking milk can help. A study released this year published in the Nutrition Journal said that daily milk intake improved vitamin B12 status in young vegetarian Indians.

2. **Absorption issues:** Some people cannot absorb B12 even from foods. Various problems in the stomach or gut can interfere with the absorption of the micronutrient. It can be due to gastric atrophy (chronic inflammation of stomach), pernicious anaemia (an auto-immune condition), ileal disease, chronic pancreatitis, parasitic infection, medications or polymorphism. Malabsorption tends to cause vitamin B12 depletion more rapidly than low dietary intake of the vitamin, and malabsorption combined with low intake causes the most rapid depletion. Malabsorption of the vitamin is most commonly observed as food-bound cobalamin malabsorption due to gastric atrophy in the elderly, and probably as a result of helicobacter pylori infection, points out Dr Misra.

3. ** Abuse of antibiotics:** Indiscriminate popping of pills is something most of us are familiar with. While it is known to affect the kidneys and the liver, the consequence on vitamin B12 status is hardly known. “Since 80 per cent of our vitamin B12 comes from the gut, ensuring the presence of good bacteria there is paramount. Loading on antibiotics can land you with a deficiency of vitamin B12 or worsen it, as drugs can affect its absorption. Including probiotics like curd in your diet can help mitigate the effects of these pills,” says Dr Bhargava.
Central Nervous System (CNS)

Damaged dividing and non dividing brain cells, Plaque formation, damaged neurotransmitters, accumulation of homocysteine, reduced SAMe (leading to depression), Paresthesia, Demyelination of posterior and lateral column (SACD Sub-Acute Combined Degeneration), Ataxia, Paralysis (esp Single Limb)

Vitamin B12 deficiency
A GI disease due to malabsorption and malutilisation

Central Nervous System (CNS)

Brain and spinal cord
The Reason you are depressed is NOT because you are PROZAC DEFICIENT
'We've reached the end of antibiotics':
Top CDC expert declares that 'miracle drugs' that have saved millions are no match against 'superbugs' because people have overmedicated themselves

By SNEJANA FARBEROV
PUBLISHED: 09:30 GMT, 26 October 2013 | UPDATED: 05:17 GMT, 26 October 2013

Health crisis: Dr Arjun Srinivasan, the associate director of the CDC, told PBS' Frontline that misuse and overuse of antibiotics over the years have rendered them powerless to fight infections.

A high-ranking official with the Centers for Disease Control and Prevention has declared in an interview with PBS that the age of antibiotics has come to an end.

'For a long time, there have been newspaper stories and covers of magazines that talked about 'The end of antibiotics, question mark?'' said Dr Arjun Srinivasan. 'Well, now I would say you can change the title to 'The end of antibiotics, period.'"

The associate director of the CDC sat down with Frontline over the summer for a lengthy interview about the growing problem of antibacterial resistance.

Srinivasan, who is also featured in a Frontline report called 'Hunting the Nightmare Bacteria,' which aired Tuesday, said that both humans and livestock have been overmedicated to such a degree that bacteria are now resistant to antibiotics.

'We're in the post-antibiotic era,' he said. 'There are patients for whom we have no therapy, and we are literally in a position of having a patient in a bed who has an infection, something that five years ago even we could have treated, but now we can't.'

Dr Srinivasan offered an example of this notion, citing the recent case of three Tampa Bay Buccaneers players who...
Vitamin Deficiencies and Mental Health: How are they Linked?

Identifying and correcting deficiencies can improve brain metabolism and psychopathology

Vol. 12, No. 01 / January 2013

Drew Ramsey, MD
Assistant Clinical Professor of Psychiatry, Columbia University College of Physicians and Surgeons, New York, NY

Philip R. Muskin, MD
Professor of Clinical Psychiatry, Columbia University College of Physicians and Surgeons, Chief, Consultation-Liaison Psychiatry, NY-Presbyterian Hospital, Columbia Campus, New York, NY

Patients today often are overfed but undernourished. A growing body of literature links dietary choices to brain health and the risk of psychiatric illness. Vitamin deficiencies can affect psychiatric patients in several ways:

- deficiencies may play a causative role in mental illness and exacerbate symptoms
- psychiatric symptoms can result in poor nutrition
• vitamin insufficiency—defined as subclinical deficiency—may compromise patient recovery.

Additionally, genetic differences may compromise vitamin and essential nutrient pathways. Vitamins are dietary components other than carbohydrates, fats, minerals, and proteins that are necessary for life. B vitamins are required for proper functioning of the methylation cycle, monoamine production, DNA synthesis, and maintenance of phospholipids such as myelin (Figure). Fat-soluble vitamins A, D, and E play important roles in genetic transcription, antioxidant recycling, and inflammatory regulation in the brain.

Figure: The methylation cycle
Vitamins B2, B6, B9, and B12 directly impact the functioning of the methylation cycle. Deficiencies pertain to brain function, as neurotransmitters, myelin, and active glutathione are dependent on one-carbon metabolism

Illustration: Mala Nimalasuriya with permission from DrewRamseyMD.com

To help clinicians recognize and treat vitamin deficiencies among psychiatric patients, this article reviews the role of the 6 essential water-soluble vitamins (B1, B2, B6, B9, B12, and C; Table 1,) and 3 fat-soluble vitamins (A, D, and E; Table 2,) in brain metabolism and
psychiatric pathology. Because numerous sources address using supplements to treat vitamin deficiencies, this article emphasizes food sources, which for many patients are adequate to sustain nutrient status.

**Table 1**

**Water-soluble vitamins: Deficiency, insufficiency, symptoms, and dietary sources**

<table>
<thead>
<tr>
<th>Deficiency</th>
<th>Insufficiency</th>
<th>Symptoms</th>
<th>At-risk patients</th>
<th>Dietary sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1 (thiamine): Glycolysis, tricarboxylic acid cycle</td>
<td>Rare; 7% in heart failure patients</td>
<td>5% total, 12% of older women</td>
<td>Wernicke-Korsakoff syndrome, memory impairment, confusion, lack of coordination, paralysis</td>
<td>Older adults, malabsorptive conditions, heavy alcohol use. Those with diabetes are at risk because of increased clearance</td>
</tr>
<tr>
<td>B2 (riboflavin): FMN, FAD cofactors in glycolysis and oxidative pathways. B6, folate, and glutathione synthesis</td>
<td>10% to 27% of older adults</td>
<td>&lt;3%; 95% of adolescent girls (measured by EGRAC)</td>
<td>Fatigue, cracked lips, sore throat, bloodshot eyes</td>
<td>Older adults, low intake of animal and dairy products, heavy alcohol use</td>
</tr>
<tr>
<td>B6 (pyridoxal): Methylation cycle</td>
<td>11% to 24% (&lt;5 ng/mL); 38% of heart failure patients</td>
<td>14% total, 26% of adults</td>
<td>Dermatitis, glossitis, convulsions, migraine, chronic pain, depression</td>
<td>Older adults, women who use oral contraceptives, alcoholism. 33% to 49% of women age &gt;51 have inadequate intake</td>
</tr>
<tr>
<td>B9 (folate): Methylation cycle</td>
<td>0.5% total; up to 50% of depressed patients</td>
<td>16% of adults, 19% of adolescent girls</td>
<td>Loss of appetite, weight loss, weakness, heart palpitations, behavioral disorders</td>
<td>Depression, pregnancy and lactation, alcoholism, dialysis, liver disease. Deficiency during pregnancy is linked to neural tube defects</td>
</tr>
</tbody>
</table>
### Deficiency, Insufficiency, Symptoms, and Dietary sources

<table>
<thead>
<tr>
<th>Deficiency</th>
<th>Insufficiency</th>
<th>Symptoms</th>
<th>At-risk patients</th>
<th>Dietary sources</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>B12 (cobalamin):</strong> Methylation cycle (cofactor methionine synthase)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10% to 15% of older adults</td>
<td>&lt;3% to 9%</td>
<td>Depression, irritability, anemia, fatigue, shortness of breath, high blood pressure</td>
<td>Vegetarian or vegan diet, achlorhydria, older adults. Deficiency more often due to poor absorption than low consumption</td>
<td>Meat, seafood, eggs, and dairy</td>
</tr>
<tr>
<td><strong>C (ascorbic acid):</strong> Antioxidant</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.1%</td>
<td>31%</td>
<td>Scurvy, fatigue, anemia, joint pain, petechia. Symptoms develop after 1 to 3 months of no dietary intake</td>
<td>Smokers, infants fed boiled or evaporated milk, limited dietary variation, patients with malabsorption, chronic illnesses</td>
<td>Citrus fruits, tomatoes and tomato juice, and potatoes</td>
</tr>
</tbody>
</table>

EGRAC: erythrocyte glutathione reductase activation coefficient; FAD: flavin adenine dinucleotide; FMN: flavin mononucleotide

**Source:** Reference 1

### Table 2

**Fat-soluble vitamins: Deficiency, insufficiency, symptoms, and dietary sources**

<table>
<thead>
<tr>
<th>Deficiency</th>
<th>Insufficiency</th>
<th>Symptoms</th>
<th>At-risk patients</th>
<th>Dietary sources</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A (retinol):</strong> Transcription regulation, vision</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;5% of U.S. population</td>
<td>44%</td>
<td>Blindness, decreased immunity, corneal and retinal damage</td>
<td>Pregnant women, individuals with strict dietary restrictions, heavy alcohol use, chronic diarrhea, fat malabsorptive conditions</td>
<td>Beef liver, dairy products. Convertible beta-carotene sources: sweet potatoes, carrots, spinach, butternut squash, greens, broccoli, cantaloupe</td>
</tr>
<tr>
<td><strong>D (cholecalciferol):</strong> Hormone, transcriptional regulation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≥50%, 90% of adults age &gt;50</td>
<td>69%</td>
<td>Rickets, osteoporosis, muscle twitching</td>
<td>Breast-fed infants, older adults, limited sun exposure, pigmented skin, fat malabsorption, obesity. Older</td>
<td>Fatty fish and fish liver oils, sun-dried mushrooms</td>
</tr>
<tr>
<td>Deficiency</td>
<td>Insufficiency</td>
<td>Symptoms</td>
<td>At-risk patients</td>
<td>Dietary sources</td>
</tr>
<tr>
<td>------------</td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>adults have an impaired ability to make vitamin D from the sun. SPF 15 reduces production by 99%</td>
<td></td>
</tr>
</tbody>
</table>

**E (tocopherols and tocotrienols):** Antioxidant, PUFA protectant, gene regulation

| Rare       | 93%           | Anemia, neuropathy, myopathy, abnormal eye movements, weakness, retinal damage | Malabsorptive conditions, HIV, depression | Sunflower, wheat germ, and safflower oils; meats; fish; dairy; green vegetables |

HIV: human immunodeficiency virus; PUFA: polyunsaturated fatty acids; SPF: sun protection factor

**Water-soluble vitamins**

**Vitamin B1 (thiamine)** is essential for glucose metabolism. Pregnancy, lactation, and fever increase the need for thiamine, and tea, coffee, and shellfish can impair its absorption. Although rare, severe B1 deficiency can lead to beriberi, Wernicke’s encephalopathy (confusion, ataxia, nystagmus), and Korsakoff’s psychosis (confabulation, lack of insight, retrograde and anterograde amnesia, and apathy). Confusion and disorientation stem from the brain’s inability to oxidize glucose for energy because B1 is a critical cofactor in glycolysis and the tricarboxylic acid cycle. Deficiency leads to an increase in reactive oxygen species, pro-inflammatory cytokines, and blood-brain barrier dysfunction. Wernicke’s encephalopathy is most frequently encountered in patients with chronic alcoholism, diabetes, or eating disorders, and after bariatric surgery. Iatrogenic Wernicke’s encephalopathy may occur when depleted patients receive IV saline with dextrose without receiving thiamine. Top dietary sources of B1 include pork, fish, beans, lentils, nuts, rice, and wheat germ.

**Clinical Point**

Although rare, severe B1 deficiency can lead to beriberi, Wernicke’s encephalopathy, and Korsakoff’s psychosis

**Vitamin B2 (riboflavin)** is essential for oxidative pathways, monoamine synthesis, and the methylation cycle. B2 is needed to create the essential flavoprotein coenzymes for synthesis of L-methylfolate—the active form of folate—and for proper utilization of B6. Deficiency can occur after 4 months of inadequate intake.
Although generally B2 deficiency is rare, surveys in the United States have found that 10% to 27% of older adults (age ≥65) are deficient. Low intake of dairy products and meat and chronic, excessive alcohol intake are associated with deficiency. Marginal B2 levels are more prevalent in depressed patients, possibly because of B2’s role in the function of glutathione, an endogenous antioxidant. Top dietary sources of B2 are dairy products, meat and fish, eggs, mushrooms, almonds, leafy greens, and legumes.

Marginal B2 levels are more prevalent in depressed patients, possibly because of B2’s role in glutathione function

Vitamin B6 refers to 3 distinct compounds: pyridoxine, pyridoxal, and pyridoxamine. B6 is essential to glycolysis, the methylation cycle, and recharging glutathione, an innate antioxidant in the brain. Higher levels of vitamin B6 are associated with a lower prevalence of depression in adolescents, and low dietary and plasma B6 increases the risk and severity of depression in geriatric patients and predicts depression in prospective trials. Deficiency is common (24% to 56%) among patients receiving hemodialysis. Women who take oral contraceptives are at increased risk of vitamin B6 deficiency. Top dietary sources are fish, beef, poultry, potatoes, legumes, and spinach.

**B-6 As A Medicine**

- Morning sickness in early pregnancy
- PMS
- Mental depression
- Cut the risk of parkinson’s disease by half
- Carpal tunnel syndrome

**Toxicity potential**

- Can lead to irreversible nerve damage with doses > 2 g/day
**Vitamin B9 (folate)** is needed for proper one-carbon metabolism and thus requisite in synthesis of serotonin, norepinephrine, dopamine, and DNA and in phospholipid production. Low maternal folate status increases the risk of neural tube defects in newborns. Folate deficiency and insufficiency are common among patients with mood disorders and correlate with illness severity. In a study of 2,682 Finnish men, those in the lowest one-third of folate consumption had a 67% increased relative risk of depression. A meta-analysis of 11 studies of 15,315 persons found those who had low folate levels had a significant risk of depression. Patients without deficiency but with folate levels near the low end of the normal range also report low mood. Compared with controls, patients experiencing a first episode of psychosis have lower levels of folate, B12, and docosahexaenoic acid.

Dietary folate must be converted to L-methylfolate for use in the brain. Patients with a methylenetetrahydrofolate reductase (MTHFR) C677T polymorphism produce a less active form of the enzyme. The TT genotype is associated with major depression and bipolar disorder. Clinical trials have shown that several forms of folate can enhance antidepressant treatment. Augmentation with L-methylfolate, which bypasses the MTHFR enzyme, can be an effective strategy for treating depression in these patients.

Leafy greens and legumes such as lentils are top dietary sources of folate; supplemental folic acid has been linked to an increased risk of cancer and overall mortality.

**Vitamin B12 (cobalamin).** An essential cofactor in one-carbon metabolism, B12 is needed to produce monoamine neurotransmitters and maintain myelin. Deficiency is found in up to one-third of depressed patients and compromises antidepressant response, whereas higher vitamin B12 levels are associated with better treatment outcomes. B12 deficiency can cause depression, irritability, agitation, psychosis, and obsessive symptoms. Low B12 levels and elevated homocysteine increase the risk of cognitive decline and Alzheimer's disease and are linked to a 5-fold increase in the rate of brain atrophy.

**Clinical Point**

**B12 deficiency can cause depression, irritability, agitation, and psychosis and can compromise antidepressant response**

B12 deficiencies may be seen in patients with gastrointestinal illness, older adults with achlorhydria, and vegans and vegetarians, in whom B12 intake can be low. Proton pump inhibitors such as omeprazole interfere with B12 absorption from food. Psychiatric symptoms of B12 deficiency may present before hematologic findings. Folic acid supplementation may mask a B12 deficiency by delaying anemia but will not delay psychiatric symptoms. Ten percent of patients with an insufficiency (low normal levels of 200 to 400 pg/mL) have elevated homocysteine, which increases the risk of psychiatric disorders.
as well as comorbid illnesses such as cardiovascular disease. Top dietary sources include fish, mollusks (oysters, mussels, and clams), meat, and dairy products. 

**Vitamin C** is vital for the synthesis of monoamines such as serotonin and norepinephrine. Vitamin C’s primary role in the brain is as an antioxidant. As a necessary cofactor, it keeps the copper and iron in metalloenzymes reduced, and also recycles vitamin E. Proper function of the methylation cycle depends on vitamin C, as does collagen synthesis and metabolism of xenobiotics by the liver. It is concentrated in cerebrospinal fluid.

Humans cannot manufacture vitamin C. Although the need for vitamin C (90 mg/d) is thought to be met by diet, studies have found that up to 13.7% of healthy, middle class patients in the United States are depleted. 

Older adults and patients with a poor diet due to drug or alcohol abuse, eating disorders, or affective symptoms are at risk. Scurvy is caused by vitamin C deficiency and leads to bleeding gums and petechiae. Patients with insufficiency report irritability, loss of appetite, weight loss, and hypochondriasis. Vitamin C intake is significantly lower in older adults (age ≥60) with depression. Some research indicates patients with schizophrenia have decreased vitamin C levels and dysfunction of antioxidant defenses. Citrus, potatoes, and tomatoes are top dietary sources of vitamin C.

**Fat-soluble vitamins**

**Vitamin A.** Although vitamin A activity in the brain is poorly understood, retinol—the active form of vitamin A—is crucial for formation of opsins, which are the basis for vision. Childhood vitamin A deficiency may lead to blindness. Vitamin A also plays an important role in maintaining bone growth, reproduction, cell division, and immune system integrity. Animal sources such as beef liver, dairy products, and eggs provide retinol, and plant sources such as carrots, sweet potatoes, and leafy greens provide provitamin A carotenoids that humans convert into retinol. Deficiency rarely is observed in the United States but remains a common problem for developing nations. In the United States, vitamin A deficiency is most often seen with excessive alcohol use, rigorous dietary restrictions, and gastrointestinal diseases accompanied by poor fat absorption.

Excess vitamin A ingestion may result in bone abnormalities, liver damage, birth defects, and depression. Isotretinoin—a form of vitamin A used to treat severe acne—carries an FDA “black-box" warning for psychiatric adverse effects, including aggression, depression, psychosis, and suicide.

**Vitamin D** is produced from cholesterol in the epidermis through exposure to sunlight, namely ultraviolet B radiation. After dermal synthesis or ingestion, vitamin D is converted through a series of steps into the active form of vitamin D, calcitriol, which also is known as 25(OH)D3.
Other Therapies for Bipolar Disorder
-B-Complex Vitamins

Scott Olson, ND

Even though large research studies supporting the use of B-vitamins for treating bipolar disorder are lacking, clinical evidence suggests that these vitamins are potentially beneficial. The B-vitamins are water-soluble (dissolvable in water) and are easily removed from the body in urine. They are generally considered safe, with little to no side-effects.

People with bipolar disorder who are taking lithium (a common standard treatment for this disorder) or are experiencing a manic episode often have low levels of Folic Acid. Supplementing with this vitamin seems to enhance the effects of lithium. Typical dosages are between 400-600 mcg a day for an adult. Folic acid has very few side-effects other than occasional nausea and diarrhea.

Like folic acid, low levels of Vitamin B12 may also be (in part) responsible for triggering manic states. As mentioned previously, vitamin B12 also plays a role in the creation of many of the mood-regulating brain chemicals (GABA, Serotonin, Dopamine, and others). No research studies have been conducted on treating bipolar disorder with vitamin B12, but the rationale behind supplementing with this vitamin appears theoretically sound.

Choline, sometimes considered one of the B-complex vitamins, has shown some promise in small trials with people who have rapid cycling bipolar disorder. The amount of choline used in these trials was based on weight (50 mg of choline per kg per day). There are very few side-effects reported with choline use, other than occasional nausea and diarrhea. Some people who take very large doses of choline also report a fishy odor on their skin and breath.

Inositol is another compound that is sometimes classified as a B-vitamin which seems to be low in people with bipolar disorder. Normal dosages range from 10-12 grams a day. There is one report of inositol inducing a manic state, but no other studies show this effect. Inositol has almost no side effects other than stomach upset. This compound may inhibit the absorption of other drugs, vitamins, or minerals, so consult with a health care provider before taking this supplement. As with vitamin B12, clinical trials examining the use of inositol for treating bipolar disorder have not been conducted, but the rationale for its use is sound.
Exercise

Exercising as little as three hours a week can have a profound effect on the symptoms of depression, but is largely untested as a therapy for people with bipolar disorder. Researchers are puzzled about the exact reason for the benefits of exercise on depression, but studies conducted with animals suggest that exercise increases the mood-regulating neurotransmitters serotonin, dopamine and norepinephrine. Exercise also releases endorphins, chemicals naturally produced in the body which reduce the experience of pain and enhance a sense of well-being.

Additional research is necessary to determine whether exercise can benefit individuals with bipolar disorder. In addition, there are many unknowns about the type and frequency of exercise that might be beneficial. Lithium, a common medication taken by people with bipolar disorder, is excreted in sweat. In one study, heavy sweating led to decreased lithium levels in the blood. Particularly if you take lithium, consult with your qualified health practitioner before starting any exercise program.

Vanadium

WARNING: Vanadium is thought to be a possible cause of bipolar disorder mood cycling and should be avoided as a supplement.
Causes and Natural Treatments for Bipolar Disorder

By Patric Darby, M.D.

www.paracelsusclinic.com

There is a vast amount of data from traditional psychiatry, that opines Bipolar Disorder to be a genetic disorder, but that doesn’t explain what causes it.

The inability to break down Norepinephrine due to a deficiency in an enzyme called COMT is one objective finding I have found useful in explaining to patients why they behave or react certain ways. (And this one is a genetic find)

Pfeiffer reported that those who have daily or day-to-day mood swings have food allergies or hypoglycemia. In addition, he said they are pyroluric and are easily treated with adequate doses of B6 and Zinc. (do you know about pyroluria?)

Pfeiffer recommends

1. Adequate B6 for dream recall (NTE 2gms qd)
2. Zinc (as gluconate) 30mg am & pm
3. Manganese (as gluconate) 10mg am & pm
4. if B6 produces numbness in extremities. Shift to pyridoxal phosphate at 1/10th dose of normal B6

I found it interesting that I have been trained in traditional psychiatry to medicate manic-depressives. Personally, I find this dreadful, as I think we lose a lot of great minds and creations when we do. Just think of all the historical geniuses who would fit the bipolar mold, and if they were living today, they would be medicated out of creating. (Not to offend anyone, but this would probably also include Jesus Christ, as he would certainly fit the bill for a Bipolar Psychotic, by today’s standards, just think about it). And all the actors, and others today who are strange and bizarre, well, some are getting medicated and they aren’t doing too much anymore.

As I just treat kids, I have found that many of them can be controlled with a sugar free diet. It takes a long time (average is about 2 years) for the family to make this adjustment, but it does work. So are they still Bipolar? (I have other opinions about this area as well).

Furthermore, there is now a Bipolar IV Disorder. That is, a patient who has an adverse reaction to a medication, such as an antidepressant and exhibits signs of mania, therefore, is labeled Bipolar. If this person never had this medication, they would never had this experience, nor would they have the diagnosis.
Treatments:

The latest psychiatry journals have finally published info about EFAs (essential fatty acids) and how patients taking those have relieved their symptoms of depression and Bipolar Disorder, and many of these patients have stopped using meds completely. So are these people still Bipolar?

Phenylalanine (in dosages of up to 4,000 mg per day) alleviates many (approximately 75% of) cases of Manic Depression.


To test the hypothesis that 2-phenylethylamine (PEA) modulates affective disorders, plasma levels and urinary excretion of its main metabolite, phenylacetic acid (PAA), were studied in depressed and manic subjects, and the mood-elevating effects of its precursor, L-phenylalanine, were studied in depressed subjects. Mean total plasma PAA concentrations were 491.83 +/- 232.84 ng/ml in 12 healthy volunteers and 300.33 +/- 197.44 ng/ml in 23 drug-free patients with major depression. The 24-hour urinary PAA excretion was also measured in 48 healthy volunteers (141.1 +/- 10.2 mg PAA/24 hr) and in 144 patients with major depression (78.2 +/- 41.0 mg PAA/24 hr). The results suggest that low plasma and urinary PAA may be state markers for depression and are compatible with the PEA hypothesis. In further support, phenylalanine elevated mood in 31 of 40 depressives.]


The author recommends the use of triiodothyronine (25 – 30 micrograms per day) for the treatment of manic depression. It is particularly useful for rapid-cycling manic depression.


The authors observed low blood glutathione levels in manic depression patients.


The author has experienced occasional positive results using supplemental L-cysteine in the treatment of manic depression. The underlying mechanism for the success of L-cysteine in some manic depression patients is believed to be via its role as a precursor for glutathione.


This study found that reduced red-cell folate occurs in both phases of bipolar disorders.


Lymphoblastoid cell lines established from patients suffering from bipolar manic-depressive psychosis or from a control group have been used to study the metabolism of the polyphosphoinositides in these cells. Cells were incubated for up to 6 h in [3H]inositol and the extent of inositol incorporation into the mono-, di- and triphosphoinositides was measured after extracting the water- and lipid-soluble inositol-containing pools. Although both the uptake of inositol and the ‘free’ intracellular inositol pool sizes were similar in the two cell groups, the incorporation of [3H]inositol into the phosphoinositides of the cells derived from bipolar manic-depressives was significantly less (by around 50-60%) than that which occurred in the control cells.


A case of mania apparently secondary to vitamin B12 deficiency appeared without other overt clinical features of pernicious anemia and resolved with B12 replacement. Six months later, the patient was receiving monthly B12 injections and his mental status remained normal.

Human case study demonstrated that mania can occur in conjunction with vitamin B12 deficiency and that vitamin B12 injections reversed this mania.

Since this study it has been demonstrated that oral vitamin B12 is as effective as injections for restoring vitamin B12 levels in cases of vitamin B12 deficiency.


Preliminary results of a double-blind, crossover comparison of normal vanadium intake with reduced intake in manic and depressed subjects are reported. Both manic and depressed patients were significantly better on reduced intake. These results are in keeping with the suggestion that vanadium may be an aetiological factor in manic depressive illness.


Tryptophan (9,000 mg per day) potentiates the beneficial effects of Lithium in the treatment of Manic Depression.

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**Mood Disorders**


This double-blind, placebo-controlled study involved manic depression patients (aged 18 – 65 years). All patients had experienced at least one manic or hypomanic episode during the preceding year. Patients were permitted to continue using an existing medication (e.g. lithium carbonate or valproate). Subjects were administered either docosahexaenoic acid (DHA, 3,400 mg per day) together with eicosapentaenoic acid (EPA, 6,200 mg per day) (30 patients received this combination) or placebo for four months. Improvement was significantly greater in the DHA + EPA group compared to the placebo group on almost every assessment measure. The significant difference in relapse rate and response was highly clinically significant. After the study had been completed, almost all patients receiving DHA + EPA opted to continue using this therapy as part of their long-term treatment.. Stoll, A. L. Comment. Arch Gen Psychiatry. 56(5):413-416, 1999.

The means via which fish oils benefit manic depression patients may involve their ability to increase serotonin levels in the brain. Omega-3 fish oil for mood swings. Life Enhancement. July 1999.

Fish oil supplement reduces bipolar symptoms and improves outcomes in pilot study. Reuters Healthwire service. 7 May 1999.

Human double-blind trial has found that 6,200 mg EPA + 3,400 mg DHA (used in conjunction with normal manic depression medication) improved almost all symptoms of manic depression and reduced the relapse rate. Fish oil is high in both EPA and DHA and could therefore be expected to produce similar results.
Eat more yogurt! Low levels of healthy gut bacteria could be the cause of mental health issues such as 'anxiety and schizophrenia'.

- The average adult carries up to five pounds of bacteria
- Healthy bacteria are known as probiotics, commonly found in yogurt, soy yogurt or as dietary supplements
- Probiotics are also delivered in fecal transplants, in which stool from a healthy donor is delivered like a suppository to an infected patient
- Strep bacterium is linked to OCD
- Gut bacteria regulate dopamine levels
- A build-up of dopamine causes agitation and stress on the body
- Gut bacteria 'talk to the brain' through the immune system or parts of the nervous system

By DAILY MAIL REPORTER

People suffering from anxiety, might just need to eat more 'healthy' bacteria.

Some scientists think there may be a link between our digestive tract microbes and disorders such as anxiety, schizophrenia and autism.
An inability to absorb niacin (vitamin B3) or the amino acid tryptophan may cause pellagra, a disease characterized by scaly sores, mucosal changes and mental symptoms.

Vitamin B Deficiency

Vitamin B deficiencies, such as B1, B2, B3 B6 and B12 have the ability to produce symptoms of neuropsychiatric disorders.

Symptoms of Vitamin B Deficiency
- Fears
- Fatigue
- Depression
- Paranoia
- Confusion
- Hostility
- Rage
- Anxiety

Symptoms of Neuropsychiatric Disorders
- Morbid Fears
- Severe Fatigue
- Depression
- Paranoia
- Confusion
- Anger
- Suicidal Tendencies
- Anxiety

Vitamin B Complex Is Essential For:
- Brain function & function of entire nervous system
- Nervous, mental & emotional function
- Energy production
- Digestion and elimination
- Blood sugar or carbohydrate metabolism
- Blood-building factors (red blood cells)
- The liver, heart, kidneys & other organs
- The endocrine gland system
- Production & regulation of certain hormones
- Normal growth & development
- Maintaining the genetic code of cells
- Assisting cell division
- Maintaining mucosal, epithelial & eye tissues
- Many enzyme systems
- Protein & lipid (fat)metabolism
- Synergism with other vitamins & minerals (esp. iron)

DID YOU KNOW?

Dr. Andrew W. Saul, co-author of Niacin: The Real Story: "When vitamin B3 or niacin was first added as an enrichment or as a fortification to flour, about half of the people in mental institutions went home. This is not a well-known fact. They were there not because they were mentally ill – because of genetic, environment, or social reasons – but because they were malnourished." Studies have confirmed the B vitamin can successfully help with attention deficit disorder, general psychosis, obsessive-compulsive disorder, depression and violent behavior.

www.oasisadvancedwellness.com
Vitamin B₁₂ Deficiency

Easy to diagnose and treat -- if you think of it.
Regardless of cause, takes years to develop.
Nervous system disease can precede blood changes.
Subacute combined degeneration of the spinal cord.

Now that food is heavily supplemented with folate acid, the neurologic presentation of B₁₂ deficiency will be more common and more severe.
<table>
<thead>
<tr>
<th>Number</th>
<th>B Vitamin</th>
<th>Alt. Name</th>
<th>Main Function(s)</th>
<th>Best Sources</th>
<th>RDI</th>
<th>Deficiency</th>
</tr>
</thead>
</table>
| 61     | Thiamin   |           | Converts protein, carbohydrates, and fat from food into energy; nervous system function synthesis of DNA | Cereal, spirulina, beans & lentils, flaxseed & other seeds, milk, pork, nuts, oats, beef, rice, wheat | **Males:** 1.2 mg/day  
**Females:** 1.1 mg/day | **Fatigue**  
**Nerve & brain damage**  
**Leads to beriberi** |
| 62     | Riboflavin |           | Converts protein, carbohydrates, and fat from food into energy, fatty acid synthesis | Milk, dairy products, eggs, fish, green leafy vegetables, cereals, whole grains, liver | **Males:** 1.3 mg/day  
**Females:** 1.1 mg/day | **Cracks in the lips, tongue swelling, and other skin issues**  
**Leads to anemia**  
**Loss of appetite**  
**Muscular weakness** |
| 63     | Niacin    |           | Converts protein, carbohydrates, and fat from food into energy, fatty acid synthesis, improves cholesterol | Yeast, meat, fish, milk & dairy, seeds, eggs, green vegetables, beans, cereal grains, nuts, poultry | **Males:** 16 mg/day  
**Females:** 14 mg/day | **Muscular weakness**  
**Fatigue**  
**Lesion on the skin** |
| 64     | Pantothenic Acid | | Converts carbohydrates and fat from food into energy, production of red blood cells, healthy digestion, hormone production | Fresh meat, vegetables, and unprocessed grains | **Males:** 5 mg/day  
**Females:** 5 mg/day | n/a |
| 65     | Pyridoxine |           | Release of stored glucose, hormone production, brain function | Liver, meat, fish, poultry, wheat germ, bananas, beans & legumes, cereal | **Males:** 1.1-1.5 mg/day  
**Females:** 1.1-1.5 mg/day | **Anxiety**  
**Depression**  
**Nervous system damage** |
| 66     | Biotin    |           | Converts protein into energy, cell metabolism, fat synthesis, hair and nail health | Eggs, nuts, fish, nut butter, beans, whole grains, cauliflower, bananas, mushrooms | **Males:** 30 mcg/day  
**Females:** 30 mcg/day | **Loss of appetite**  
**Vomiting**  
**Depression** |
| 67     | Folic Acid |           | Protein and amino acid metabolism, DNA synthesis, formation of red blood cells | Grains, bread, cereal vegetables, berries, oranges, bananas | **Males:** 400 mcg/day  
**Females:** 400 mcg/day | **61 point**  
**Anemia** |
| 68     | Cobalamin |           | Food metabolism & energy production, DNA synthesis, formation of red blood cells, brain & nervous system function | Liver, yogurt, dairy products, fish, clams, oysters, nonfat dry milk, salmon, sardines | **Males:** 2.4 mg/day  
**Females:** 2.4 mg/day | **Nerve damage**  
**Fatigue**  
**Anaemia** |

**VITAL VITAMIN CHART**

<table>
<thead>
<tr>
<th>Number</th>
<th>Vitamin</th>
<th>Formulas</th>
<th>Niacinamide</th>
<th>Cobalamin</th>
<th>Radiation</th>
<th>Side Effects</th>
<th>Sources</th>
<th>Name</th>
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<tbody>
<tr>
<td>61</td>
<td>Thiamin</td>
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<td>Riboflavin</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>67</td>
<td>Folic Acid</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>68</td>
<td>Cobalamin</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Vitamin B Complex:**

- **Thiamin (Vitamin B1):** Helps release energy from carbohydrates, fats, and proteins. Essential for the metabolism of nutrients.
- **Riboflavin (Vitamin B2):** Helps release energy from food, contributes to healthy skin, and is involved in the metabolism of carbohydrates, fats, and proteins.
- **Niacin (Vitamin B3):** Involved in the metabolism of carbohydrates, fats, and proteins. Helps regulate cholesterol levels and is essential for healthy skin.
- **Pantothenic Acid (Vitamin B5):** Involved in the metabolism of carbohydrates, fats, and proteins. Helps maintain nerve and skin health.
- **Pyridoxine (Vitamin B6):** Involved in the metabolism of carbohydrates, fats, and proteins. Helps maintain nerve and skin health.
- **Biotin (Vitamin B7):** Involved in the metabolism of carbohydrates, fats, and proteins. Helps maintain nerve and skin health.
- **Folic Acid (Vitamin B9):** Involved in the metabolism of carbohydrates, fats, and proteins. Helps maintain nerve and skin health.
- **Cobalamin (Vitamin B12):** Involved in the metabolism of carbohydrates, fats, and proteins. Helps maintain nerve and skin health.

**Deficiency Symptoms:**

- **Thiamin deficiency:** Fatigue, nerve damage, and skin problems.
- **Riboflavin deficiency:** Fatigue, skin problems, and eye problems.
- **Niacin deficiency:** Fatigue, skin problems, and eye problems.
- **Pantothenic Acid deficiency:** Fatigue, skin problems, and eye problems.
- **Pyridoxine deficiency:** Fatigue, skin problems, and eye problems.
- **Biotin deficiency:** Fatigue, skin problems, and eye problems.
- **Folic Acid deficiency:** Fatigue, skin problems, and eye problems.
- **Cobalamin deficiency:** Fatigue, skin problems, and eye problems.
### Vitamins - Rapid Reference Deficiency Chart

#### How To Read Symptoms As Possible Indicators Of Vitamin Shortages

<table>
<thead>
<tr>
<th>Vitamin</th>
<th>Name/Symbol &amp; RDA</th>
<th>Symptoms of Deficiency</th>
<th>Best Natural Sources</th>
<th>Additional Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>B17</td>
<td>Lactil 250 mg</td>
<td>IS FOUND IN: raw (heat destroys it) apricot kernels (10 mg each), apple pits, cherry stones, millet seeds, buckwheat, plum stones, bitter almonds &amp; some berries. It is a source of inorganic cyanide which destroys CANCER CELLS specifically. BUT too much is dangerous (not more than 1 gram of supplement or a few apricot kernels at one time).</td>
<td>Various seeds. Cold sweats, blue lips, breathlessness, nausea, headache &amp; low blood pressure.</td>
<td>OVERDOSE SYMPTOMS: cold sweats, blue lips, breathlessness, nausea, headache &amp; low blood pressure.</td>
</tr>
</tbody>
</table>
### Vitamins 101

<table>
<thead>
<tr>
<th>VITAMIN / MINERAL</th>
<th>ACTIONS</th>
<th>TOO MUCH CAN CAUSE...</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WATER-SOLUBLE VITAMINS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B1, B2, B5</td>
<td>Help process nutrients</td>
<td>No effects reported</td>
</tr>
<tr>
<td>B3</td>
<td>Helps process nutrients; maintain healthy nervous system, skin and digestion</td>
<td>Skin redness; upset stomach</td>
</tr>
<tr>
<td>B6</td>
<td>Helps process nutrients; supports nervous and immune systems; O2 transport in blood; helps maintain blood sugar</td>
<td>Nerve damage to arms and legs</td>
</tr>
<tr>
<td>B12</td>
<td>Maintains nerve and red blood cells; needed for cell replication</td>
<td>No effects reported</td>
</tr>
<tr>
<td>C</td>
<td>Helps form connective tissue; antioxidant; supports immune system</td>
<td>Upset stomach, kidney stones, increased iron absorption</td>
</tr>
<tr>
<td>H</td>
<td>Helps body use nutrients; form red blood cells; good for nervous system</td>
<td>No effects reported</td>
</tr>
<tr>
<td>Folic acid</td>
<td>Cell reproduction; prevents birth defects</td>
<td>High levels could hide signs of B12 deficiency</td>
</tr>
<tr>
<td><strong>FAT-SOLUBLE VITAMINS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Vision; healthy skin and mucous membranes; key to immunity, tissue repair, bone growth and embryo development; antioxidant</td>
<td>Nausea, vomiting, headache, dizziness, blurred vision, clumsiness, birth defects, liver problems, risk of osteoporosis</td>
</tr>
<tr>
<td>D</td>
<td>Helps body absorb calcium and phosphorous; may help prevent fractures; prevents rickets and bone weakness; supports immune system</td>
<td>Nausea, vomiting, poor appetite, constipation, weakness, weight loss, confusion, heart rhythm problems, calcium and phosphate deposits</td>
</tr>
<tr>
<td>E</td>
<td>Antioxidant; helps blood flow; body tissue repair</td>
<td>Minimal risk</td>
</tr>
<tr>
<td>K</td>
<td>Blood clotting; bone formation</td>
<td>No effects reported</td>
</tr>
</tbody>
</table>

Source: adapted from Vitamins and Minerals: What you should know by Familydoctor.org.
SYMPTOMS OF VITAMIN B12 DEFICIENCY

- Weakness
- Fatigue
- Lethargy
- Increased heart beat
- Pale complexion
- Sore tongue
- Easy bruising and bleeding
- Frequently upset stomach
- Unexplained weight loss
- Constipation or diarrhea

**Test:** Blood test for vitamin B12

**Cost:** ₹1,500 – ₹2,000

**Normal value:** 200 – 900 pg/mL (picograms per millilitre).

**Deficiency:** Values of less than 200 pg/mL are a sign of a vitamin B12 deficiency.
Symptoms of Vitamin B Deficiency
- fears
- fatigue
- depression
- paranoia
- confusion
- hostility
- rage
- anxiety

Symptoms of Neuropsychiatric Disorders
- morbid fears
- severe fatigue
- depression
- paranoia
- confusion
- anger
- suicidal tendencies
- anxiety

**B12 Deficiency Symptoms**

- Stunted Growth & Development in Children
- Appetite Loss
- Tender or Sore Tongue
- Eczema
- Rapid Heartbeat
- Anemia
- Bleeding Gums
- Weakened Immunity
- Depression
- Tingling & Numbness in Extremities
- Muscle Cramps
- Abdominal Pain
- Birth Defects
- Weakened Immunity
- Bruising
- Hair Loss
SIGNS OF NUTRITIONAL DEFICIENCIES

HANDS
- Cold Hands: magnesium deficiency, hypothyroidism, chronic fatigue

NAILS
- Ridges/white spots: zinc deficiency
- Soft/brittle nails: magnesium deficiency

SKIN
- Stretch Marks: zinc deficiency
- Pimply rough skin at back of arms: essential fatty acid deficiency
- Follicular hyperkeratosis: vitamin A deficiency
- Red scaly skin on face: vitamin B2 deficiency

MOUTH
- Pale fissured tongue: iron deficiency
- Cracked lips: vitamin B2 deficiency
- Swollen tongue & lateral teeth indentations: folic acid deficiency

GUMS
- Pyorrhoea: Co Q 10 deficiency
- Bleeding gums: vitamin C deficiency
- Gum disease: Co Q 10, folic acid, vitamin C deficiency

EYES
- Cataracts: chromium deficiency
- Bags/dark rings under eyes: allergies/food intolerances

THROAT
- Thyroid swelling: iodine deficiency, hypothyroidism

HEART
- Irregular beat, high blood pressure, cardiomegaly: magnesium and Co Q 10 deficiencies and sensitivity to caffeine

www.livelovefruit.com
Top 5 Vitamins and Supplements for Anxiety Episodes

- **B vitamins**
- **Vitamin D**
- **Omegas**
- **Holy basil**
- **Dong quai**

**Vitamin B9 (Folate)**
- Aids in the production of red blood cells
- Aids in the synthesis of DNA
- Works with B12 and vitamin C to help the body digest and utilize proteins
Detection of Glyphosate Residues in Animals and Humans

Monika Krüger1, Philipp Schiederm, Wieland Schrodi, Hans-Wolfgang Hopper, Walburga Lutz1 and Aawd A. Shehata1,∗

1Institute of Bacteriology and Mycology of Veterinary Faculty, University of Leipzig, Germany
2Metabolic Research Institute, Bon, Germany
3Veterinary Medicine, Salal City University, Egypt

Abstract

In the present study, glyphosate residues were tested in urine and different organs of dairy cows as well as in urine of hares, rabbits and humans using ELISA and Gas Chromatography-Mass Spectroscopy (GC-MS). The correlation coefficients between ELISA and GC-MS were 0.96, 0.97, 0.97 and 0.96 for cattle, human, and rabbit urine and organs, respectively. The recovery rate of glyphosate in spiked meat using ELISA was 91%. Glyphosate excretion in German dairy cows was significantly lower than Danish cows. Cows kept in genetically modified areas had significantly lower glyphosate concentrations in urine than conventional dairy cows. Also, glyphosate was detected in different organs of saughten cows as intestine, liver, muscles, spleen and kidney. Fattening rabbits showed significantly higher glyphosate residues in urine than hares. Moreover, glyphosate was significantly higher in urine of humans with children than in humans without children showed significantly higher glyphosate residues in urine than healthy population. The presence of glyphosate residues in both humans and animals could have the entire population towards numerous health hazards, studying the impact of glyphosate residues on health is warranted and the global regulations for the use of glyphosate may have to be re-evaluated.

Keywords: Glyphosate; Animals; Husbandry cows; Health hazards; Gas Chromatography-Mass Spectroscopy (GC-MS); ELISA

Introduction

Glyphosate (N-phosphonometethyl glycine) is registered as herbicide for many food and non-food crops as well as non-crop areas where total vegetation control is needed. It is the dominating use of glyphosate, in descending order, is stable management, pre-sowing application and pre-harvest application (destination). Glyphosate is also used to prevent weeds in fields with glyphosate resistant genetically modified (GMO) crops like soybean, rapeseed, corn, etc. Since 1990 the amount and the number of genetically engineered crops dramatically increased worldwide. It is estimated that 90% of the transgenic crops grown worldwide are glyphosate resistant [1]. The rapidly growing problem of glyphosate-resistant weeds is reflected in steady increases in the use of glyphosate on crops. Stems, leaves and beans of glyphosate resistant soy are contaminated with glyphosate. Moreover, due to the intensive use of glyphosate it was frequently detected in water, rain and air. Chang and coworkers [2] detected glyphosate concentrations in air and rain up to 2.5 μg/L in agricultural areas in Mississippi and Iowa. In Europe, GM soybean for food and feed was admitted in 1996. All animals and humans eating this soy chronically incorporate unknown amounts of this herbicide. Residues of glyphosate in tissues and organs of food animals fed with GM feed (soybean, corn, etc.) are not considered or neglected in legislation. The influence of glyphosate residues on the quality of animal products intended for human food is almost unknown. The incorporation of GM soybean meal in broiler feed significantly affects the color parameter for breast muscles [3]. In contrast, Eichhorn and coworkers [4] did not find any effects on the performance and carcass characteristics of feedlot steers. Furthermore, glyphosate is a potent chelator fixing trace and macro elements [5-7].

The mode of action of glyphosate is through specific inhibition of 5-enolpyruvylshikimate 3-phosphate synthase (EPSPS), an enzyme of the shikimate pathway that governs the synthesis of aromatic amino compounds in higher plants, algae, bacteria and fungi [8]. As this enzyme is absent in mammals it is often assumed that glyphosate is not harmful for mammaliana. Even so, there is an ongoing debate about the safety of this herbicide. Firstly, long-term toxicology of the low glyphosate residues has not been investigated in vertebrates. Secondly, although EPSPS is absent, glyphosate has been reported to inhibit other enzymes, e.g., enzymes of the cytochrome P450 (Cyp450 family) [9]. Other inhibition pathways are reported. Richard et al. [10] reported that such as glyphosate inhibits Cyp450 aromatase, inhibition indicated crucial for sex steroid hormone synthesis.

Glyphosate also interferes with cytochrome P450 enzymes which include numerous proteins able to metabolize xenobiotics [10]. This may also act synergistically with disruption of the biosynthesis of aromatic amino acids by gut bacteria, as well as impairment in serum sulfate transport. Recently, it was suggested that gastrointestinal disorders, obesity, diabetes, heart disease, depression, autism, infertility, cancer and Alzheimer's disease are associated with Western diet [11]. Furthermore, genotoxic activity [12], teratogenic activity [13], and disturbance of the normal gut bacterial community [14,15] due to glyphosate are reported. Glyphosate showed cytotoxic effects on different cells in vitro [16-18], and Barbosa et al. [19], proposed that glyphosate may have contributed to the Parkinson's disease due to its chemical similarity with glycine, a co-factor required for activation of the N-methyl-d-aspartate receptor (NMDA), which controls excitatory actions in the central nervous system and is also involved in memory and learning. However, in clinical studies has not shown NMDA activity in relation to glyphosate poisoning [20].

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References


20. ^ Dupré, A; Albarel, N; Bonafe, JL; Christol, B; Lassere, J (1979). "Vitamin B-12 induced acnes". Cutis; cutaneous medicine for the practitioner 24(2): 210–1. PMID 157854.


32. ^ Vitamin B injections mentioned


Stimulation of Sports Performance and relief of Sports Pains with a Natural Herbal Yeast- B 15 Formula with Special consideration of the SCIO

Towards a Natural Oxygenation and Sports Stimulation Formula

Chief Editor: William Nelson, Prof Medicine IMUNE
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Christian Sirbu Dr of Homeopathy, Budapest, Hungary
Istvan Bandics, M.D.; Budapest, Hungary
Gylila Panszki, M.D.; Budapest, Hungary

Developed By:
The staff of IMUNE 1997

This study tests the effects of a natural oxygenation formula on sport fatigue pain, and sport performance. The SCIO treatment provides a basic repair stimulation signal for cellular rejuvenation. Diseased tissue has a different type of electrical signature than healthy tissue. When the SCIO detects an injured tissue signal it responds with a curative stimulation electrical pattern to promote and speed healing. There are also many additional effects from the device to enhance sport performance in general.

Key Words: Stimulation, Flower Pollen, Pangamic Acid, Oxygenation, Xrroid, SCIO

Hypothesis

Since flower pollen and certain yeast’s RNA and DNA components have been demonstrated to be an oxygenator supplement for stimulating the Brain. It has been used as an energy kick pill to complement sport training exercises. The B vitamins are well documented for brain Stimulation and are one of the few documented thinking enhancers.

The Russian scientists in the 1950 have shown the profound oxygenation stimulation effects of Pangamic Acid (known as B15). In the 1950’s there was an over reaction of the American FDA to certain B vitamins. They labeled B15 as illegal to make in America. This B15 formula was called liquid Oxygen by the Russian developers. The sports effects were profound and the soviets lead the world in Olympic events for the next decades. Since the wellness of any organ or organism is dependent on how well it uses oxygen, Pangamic acid has an overall tonic or panacea for any condition.

Perhaps a combination of other known oxygenators with pollen can provide a synergistic effect for cellular oxygenation. Since the action of the pollen seems to be from the nucleotides and the trace elements in the pollen, providing an extra source of nucleotide might facilitate absorption. Towards this goal, RNA and DNA from yeast sources were added to our formula. Since nucleotide absorption depends on protein-digesting enzymes (deficient in most clients), comfrey pepsin is added to the herbal base where the protease pepsin lies dormant in its protein-breaking-up action waiting for HCL in the stomach to activate it into pepsinogen. B12, folic acid and most importantly, B15 were also added to the formula for their strong oxygenation abilities and their methyl donor action, fortifying both lung and liver action.
B17 + B18 + B19 + B20 were also added in trace amounts from herbal sources. This addition of the higher B complex (B12, folic acid, B15, and B17) helps stabilization of nervous function as well. Oxygenation and stabilization of blood pH is also dependent on zinc in the form of zinc anhydrase and other zinc dependent enzymes. Since the average American diet is deficient in zinc, a trace amount is added to the formula.

So our formula for oxygenation will include the following.

**Formula:**

- RNA, DNA (yeast type)
- Thiamine B1
- Riboflavin B2
- Niacin B3 Pantothenic Acid B5
- Pyridoxine B6
- Choline B11
- Biotin B10
- Folic Acid B9
- Pangamic Acid B15 (pangamate yeast carrier)
- B16, B17, B18, B19, B20 --all natural source
- Hunzas Bee Pollen
- Zinc Aspartate (chelated)
- Comfrey Pepsin
- Free Fatty Acids
- Minerals- Calcium, Phosphorous, Potassium, Magnesium
- Trace Minerals- Iron, Tin, Zinc, Manganese,

**Methods and Materials**

*Testing involved three types of experimental criteria:*

1. Electro-physical measures of oxygenation. Here the microamperage output of the body is measured and after the patient takes a deep breath, the amperage increases in correlation to the oxygen absorbed in the bloodstream. Fifteen microamps are found to be average in healthy, active participants. Three groups of ten were measured for this electro-oxygen potential. Random selection of participants, all twenty to thirty-five years of age, were healthy, nonprofessional athletes. Group 1 was given placebo (lactose sugar) in two pills, twice a day. Group 2 was given Cerniltons (Swedish bee pollen sports tab) in two pills, twice a day. Group 3 was given our formula in two pills, twice a day. All groups were monitored for electro-oxygen potential once a day for seven days.

2. Twenty-one professional athletes were divided into three similar groups. These athletes, already in training, were asked to run for ten minutes. Distances were recorded before the supplementation program and again ten days later. This study was done with the cooperation of the Cleveland Browns in 1987.
3. Twelve somewhat out-of-shape participants were asked to take either the flower pollen or our own formula, and then initiate an exercise program of weights and running. After three days participants were asked to rate the muscle pain and strain that they experienced from exercise. Participants rated the following on a scale of 1 to 10, 10 being severe:

A. Muscle pain
B. Muscle strain
C. Joint pain
D. Difficulty in breathing
E. Ability to flex
Results

The results of experiment #1 showed conclusively that the Bee Pollen formula, versus the control and the Flower Pollen, was able to put oxygen into cells. This was measured electrically. This was shown to take four to five days to reach its maximum effects.

The results of experiment #2 showed an increase of approximately one tenth of a mile in performance of the athletes versus control or Bee Pollen. This is an incredible advance. This is the difference between first and last in a race. There is an extremely profound sport effect. The participants in this experiment were members of the Cleveland Browns and in the next five years they will all but one make the all pro list. A friend of mine was a high altitude bike athlete who was not so good at his sport. He would normally place 48 thru 50th out of 50. But his heart was good and he always tried his best. After two weeks of the formula he placed second in a race then he had three consecutive wins. He told me it seemed like he could run the race again, instead of being wasted at the end. This formula is legal for use and is not in any way banned from sport use.

Results of experiment #3 showed that the homeopathic combination formulas were able to help patients to control the aches and pains of starting a sports program.
Background Discussion

**OXYGEN TRANSPORT BY THE BLOOD**

When haemoglobin (Hb) is exposed to O2, the O2 molecules continually collide with it. If there is an empty binding site on the Hb, a colliding O2 may bind to it. But bound O2s are continually shaking loose from their sites in the presence of trace minerals such as zinc. Equilibrium is reached when the number being bound just equals the number shaking loose. In Hb, this equilibrium is reached very fast, and its position is determined largely by the PO2. The higher the PO2 (the more concentrated the O2), the more frequent the collision with Hb and the more frequently an O2 will bind. As the O2 concentration increases, more and more binding sites are filled, until finally every site is filled, with each Hb molecule containing four bound O2 molecules. At this point, we say the Hb is 100% saturated; when only half are occupied, the Hb is 50% saturated.

Hb takes up O2 at the partial pressures that exist in the lungs and in the tissues. In the lungs, PO2 = 105 mm Hg; the curve shows that Hb is 97% saturated. Hb will unload O2 in the tissues where PO2 averages about 40 mm Hg and may fall even lower to 20 mm Hg in active muscles. There is a difference between the percentage of Hb saturation of blood just after leaving the lungs and the percentage of Hb saturation in the tissues. This difference is the O2 delivered to tissues.

This oxygenation cycle is the base of all life and the best indicator of wellness. The supply of the methyl donor pamgamin and the other high end B vitamins boost and enhance the carbohydrate
utilization curve via the oxygen cycle. The additional rare minerals and bee pollen components also have oxygen stimulation effects.

Hb “works” because its saturation curve is S shaped; it unloads most of its O2 in a very narrow range of P02 between 20 and 40 mm Hg. This behavior is due to the fact that Hb is made of four interacting subunits that “cooperate” in binding O2. The first portion of the curve at very low P02 is flat because Hb is in the tense state and not receptive to O2. As more O2 molecules are introduced, the likelihood of one of them binding goes up. Once it binds, it influences the other vacant binding sites on the same Hb molecule, increasing the probability of binding a second O2, which will increase the chances for a third, etc. Thus, the binding (saturation) curve rises very steeply and fortunately in just the right region!

Contrast this behavior with that of myoglobin, the O2 storage protein in muscle cells. It is similar to Hb, but it contains only one subunit; one molecule binds only one O2, and there is no possibility of a T state or of cooperative binding. Its binding curve is not S shaped, and rather than giving up its O2 at the P02 found in the venous blood, it takes it up. But this fits its function; myoglobin stores O2 and will give it up in the tissues only when the P02 falls very low.

The P02 is not the only variable that influences the binding of O2 to Hb. There are several percentage of saturation curves for Hb under different conditions. In one of them, the concentration of CO2 has increased, and the O2 saturation curve for Hb has shifted to the right (i.e., it lies below the “normal” curve). In this case, a higher P02 is required to achieve the same percentage of saturation, and this means the Hb has a lower affinity for O2. If the Hb were just sitting there, exposed to a constant P02, and CO2 suddenly increased, shifting the curve to the right, then the Hb would release some of its O2. This actually happens as blood passes through a capillary, and CO2 diffuses into the blood from the tissues. In addition to CO2, two other important substances shift the curve to the right. These are H+ and a phosphorous-containing metabolite, 2, 3 DPG. These each bind at separate locations on the Hb molecule, but they all act in similar ways by strengthening linkages between Hb subunits, which promotes the tense state with low O2 affinity. Tissues commonly produce CO2 and H+. This helps drive O2 off the Hb, making it more available to tissue cells. An effect enhanced by the Oxygen Stimulator pills.

When the curve is shifted to the left, above the “normal” curve, the Hb has more affinity for O2; it takes some up. This will occur whenever the 2,3 DPG level falls. In fact, when all the 2,3 DPG is removed, Hb’s affinity for O2 increases to such an extent that it begins to resemble myoglobin. The Hb in fetal red cells is different from adult Hb; in particular, fetal Hb does not bind 2,3 DPG as readily as adult Hb. In other words, it is less sensitive to 2,3 DPG. As a result, the O2 saturation curve for fetal Hb lies above the curve for maternal Hb, showing that fetal Hb has a greater affinity for O2. This is an advantage for the fetus because when fetal Hb comes in proximity to maternal Hb (in the placenta), it will draw O2 from the maternal blood.

The role of 2,3 DPG has attracted a good deal of attention because it is not simply an essential “ingredient” whose presence is required for normal Hb function. Rather, its level can vary considerably, and it is involved in regulating O2 transport in both health and disease. Its level rises when O2 uptake in the lungs is compromised, and this helps the Hb unload a larger portion of the O2 that it does carry when it gets to the tissues. This rise in 2,3 DPG occurs, for example, during the first day’s adaptation to high altitude and during obstructive lung diseases. The Oxygen Stimulator has a positive effect on 2,3 DPG, explaining part of it’s ability to assist oxygenation.
The Xrroid Effect In Stimulation of Oxygenation. The word Xrroid is defined as the testing of a patient Electro Physiological Reactivity to thousands of substances at biological speeds. Biological speeds are defined as those approaching the ionic exchange speed of a persons’ electrical reaction to the items in their immediate environment. This is a speed of approximately 1/100 of a second. The Xrroid is the process of measuring a patients’ reaction to such items as vitamins, homeopathics, enzymes, hormones, allersodes, isodes, nosodes, etc.

The Xrroid is the invention of Dr. Nelson and was first used in 1985 in the EPFX device of Eclosion. This was registered with the FDA of America in 1989. The process has been greatly advanced technologically in the QXCI device. The Xrroid has been used on millions of patients around the world for over a decade. The process has been clinically tested with results being published in medical journals and articles being presented in several world wide medical conferences. The users of the systems have sent in thousands of testimonials and reports of dramatic success come in daily. The users use the device as directed, which means seeing a patient once a week at best.

For over a decade occasionally someone with an overly suspicious mind will try to use the device not as directed but on someone repeatedly in the same day. They will check some over and over in the same day. They will report back to us with dismay as that even though the first results are always accurate the second or third results seem to not be. Often these reports come from persons who cling to older technology or have ulterior motives. So often the reports have not been checked. But recently when the Chinese distributor had a similar comment the Chinese representative had an observation. Could it be that the Xrroid test might produce some effect on the EPR of the patient? The tickle of testing a person to thousands of items at fast speeds seems to promote a increase in the wellness of the EPR field that promotes a change or destabilization in the EPR field of the patient. This will lead to inaccurate Xrroid results for a period of up to 48 hours. So for this time the therapies can be done successfully but the Xrroid will be less accurate.

Patients will have hyper-reactivity states after testing. Some patients report heightened sense of taste, smell, coordination, flexibility, and even ESP. Some are not aware of the difference and their other family members report noticing the change. During this period the Xrroid retesting will often be inaccurate. But therapies can be used during this time. The recovery time appears to vary depending on the patient condition. The recovery time can be from 24 hours minimum to 100 hour maximum.

Our tests have shown that the Xrroid itself has healing effects as patients have improved trivector patterns. Athletes consistently report heightened reflexes, improved coordination, and faster motor skills. After one Xrroid test there are several improvements in clarity of thought process, eye hand coordination, etc. But after two or more Xrroid test a state of hyperactivity can ensue for hours or days. Please keep the Xrroid tests to a minimum. This change in EPR shows just how effective the Xrroid is. I hope this will help the skeptics in properly charting out the challenge of the SCIO.

**TRANSPORT OF CO2, H+, AND O2**

The subunit structure of Hb introduces into the molecule new properties that are not shared by the simpler single unit analog, myoglobin. In particular, increasing the concentrations of CO2 and H+ drives O2 off the Hb molecule. The converse also holds: increasing the concentration of O2 drives off both CO2 and H+. At first, this unusual sensitivity of Hb to its environment may seem undesirable in a molecule whose function is to stabilize the P02 in body fluids. However, the
function of Hb goes beyond this; it not only transports O2, it also transports both CO2 and H+. Further, Hb reacts with these three substances in a remarkable way so that just the “right” thing happens at the “right” time.

Like O2, CO2 transport is passive. PCO2 is high in the tissues because it is produced there. It is low in the lung alveoli because it is swept out with each breath, and therefore it is also low in the arterial blood that enters tissue capillaries. CO2 moves down its partial pressure gradient from tissue to capillary blood to lung alveoli (plate 48). Although blood holds a small amount of CO2 (about 9%) in simple solution and another fraction (about 27%) in combination with Hb, the major portion (64%) reacts with water, forming bicarbonate (HCO3⁻) and hydrogen ions (H+).

\[ \text{CO}_2 + \text{H}_2\text{O} \rightarrow \text{H}_2\text{CO}_3 \rightarrow \text{HCO}_3^- + \text{H}^+ \]

Because PCO2 is high in the tissues, this reaction proceeds to the right, and CO2 is carried as bicarbonate. However, there is a major problem with this reaction; it leads to the accumulation of H+ ions. Not only are H+ ions acid, but their accumulation will slow down and block the reaction of CO2 with water, which severely limits the amounts of CO2 that can be carried. The dilemma is resolved by substances in the blood that “soak up” or buffer excess H+ ions. Hb is one of the most important of these buffers; its reaction with H+ can be represented as follows:

\[ \text{H}^+ + \text{HbO}_2^- \rightarrow \text{HHb} + \text{O}_2 \]

where the HbO2 represents Hb with O2 attached (oxyhemoglobin), and the (⁻) sign signifies one of the many (-) charges carried by the Hb molecule. Similarly, HHb represents Hb with an extra H+ attached.

Notice that these reactions are both reversible (i.e., they can proceed from left to right or from right to left depending on the concentrations of reactants and products). At equilibrium, the reaction proceeds in both directions, but at equal rates so that no noticeable change takes place. However, when concentrations of substances on the right are decreased, the reaction gets “pulled” from left to right. Increasing concentrations on the left will “push” the reaction from left to right. Conversely, decreasing the concentrations of substances on the left, or increasing them on the right, moves the reaction from right to left.

In the tissues, the reactions involving Hb and bicarbonate are coupled because H+ ions are a common participant in both. In the tissues:

\[ \text{CO}_2 + \text{H}_2\text{O} \rightarrow \text{H}_2\text{CO}_3 \rightarrow \text{HCO}_3^- + \text{H}^+ \]

\[ \text{H}^+ + \text{HbO}_2^- \rightarrow \text{HHb} + \text{O}_2 \]

The first reaction proceeds in the indicated direction because (1) CO2 is produced in tissues so its concentration is high, and (2) as soon as excess H+ begins to accumulate, it is consumed by the second reaction. The second reaction proceeds in the indicated direction because (1) a steady supply of H+ is liberated by the first reaction, (2) a steady supply of HbO2 at high concentration is coming from the lungs, (3) HHb is continually swept away in the venous blood, and (4) O2 is consumed by the tissues, so its concentration is low. Note that as soon as H+ is produced, it is picked up by the Hb, so free H+ does not accumulate to dangerous levels. In the process, the tissues receive an extra dividend: more O2 is driven off the Hb than would be without the H+ binding.

In the lungs, these same reactions occur, but now in reverse:

\[ \text{O}_2 + \text{HHb} \rightarrow \text{HbO}_2^- + \text{H}^+ \]

\[ \text{H}^+ + \text{HCO}_3^- \rightarrow \text{H}_2\text{CO}_3 \rightarrow \text{H}_2\text{O} + \text{CO}_2 \]
The first reaction proceeds in the direction of the arrow because (1) P02 is high in the lungs, (2) there is a steady supply of HHb at high concentration coming from the tissues (via systemic venous blood), and (3) as soon as excess H+ accumulates, it is consumed by the second reaction. The second reaction proceeds as shown because (1) there is a steady supply of H+ liberated by the first reaction, (2) there is a steady supply of HC03 at high concentration coming from the tissues, and (3) breathing keeps CO2 at a low level. Thus, H+ ions, which at first appeared to be a problem, actually play a very useful role: in the tissues they drive O2 off of Hb, and in the lungs they help drive CO2 off of HC03. They never accumulate in the free state because they are passed back and forth like a “hot potato” between Hb and HC03.

PATHWAYS FOR MEMBRANE TRANSPORT

To deal with movements through membranes, we require a “common denominator” that allows us to compare magnitudes of forces and predict motions. Free energy provides that concept. Free energy is the amount of energy that can be “set free” to do work. When substances move from regions where their free energy is high to regions where it is low, down the free energy gradient, we call the movement passive because it can occur without any “aid” or work done by an external agency. The substance simply loses some of its energy to the environment. However, substances cannot move in the opposite direction (from low to high free energy) without obtaining energy (work) from the environment. When substances move uphill, from low to high free energy, we call the process active. One of the major problems of membrane physiology is to identify the source of energy supplied by the environment and to describe in detail how it is utilized.

Favorable free energy gradients by themselves are not sufficient to ensure transport. It doesn’t matter how large a gradient is if the membrane does not allow the substance to pass through. In addition to a favorable gradient, there must also be a pathway. The common pathways we describe in this plate have not been fully identified; our understanding is incomplete, and our descriptions of mechanisms are oversimplified.

PASSIVE PATHWAYS. Some solutes, particularly steroid hormones, fat soluble vitamins, oxygen, and carbon dioxide, are lipid soluble. They simply dissolve in the lipid bilayer portions of the membrane and diffuse to the other side (1). Many other important solutes, including ions, glucose, and amino acids, are more polar; they are soluble in water, but not in lipids. These substances move through special pathways provided by proteins that span the membrane. Small solutes like Na+ pass through channels (2). Larger ones like glucose enter the cell by facilitated diffusion (3). They bind to a protein carrier that “rocks” back and forth or moves in some other way, exposing the binding site first to one side, then to the other side of the membrane. The solute hops on or off the site, depending on the concentration. If there is a higher concentration outside the cell, then the binding site will have a greater chance of picking up a solute on the outside, and more solutes will move in than out. This will continue until the concentrations on both sides are equal. At this point, movement in one direction is just balanced by movement in the opposite direction; net movement ceases. It is a purely passive transport because any glucose movement is always down its concentration gradient. Similar facilitated diffusion systems exist for many other substances.

TRANSPORT AGAINST GRADIENTS. Proteins also provide pathways for solute movements against concentration gradients (uphill). Primary active transport (4) is probably similar to facilitated diffusion. The transported molecule binds to a site on a protein that can “rock” or otherwise expose the binding site first to one side then to the other side of the membrane. Now, in contrast to the passive facilitated diffusion described above, suppose the binding site properties change and depend on which side of the
membrane it faces. If the solute can bind on only one side of the membrane, say on the surface facing the inside of the cell, then transport is in only one direction, from inside to out, but never the reverse. Now if the concentration is less inside than out, our protein will transport against a gradient; it will be an active transport system. Energy for the transport will have to be supplied in order to change the binding site properties each time it cycles back and forth. This energy is generally derived from the splitting of ATP.

Solute can also move uphill by co- and counter transport. Both utilize the passive transport of one solute to transport a different solute. Our example of co-transport (5) is similar to facilitated transport, but now the protein carrier has binding sites for two different solutes, Na+ (represented by circles) and glucose (triangles). The carrier will not “rock” if only one of the sites is occupied. In order to “rock,” both sites have to be empty or both sites occupied (both a Na+ and a glucose have to be bound). Outside the cell, Na+ is much more concentrated than glucose, but inside the cell, the concentration of Na+ is very low because it is continually pumped out by an active transport process operating elsewhere in the membrane. Both Na+ and glucose will move into the cell, but few molecules will come back out because the low concentration of intracellular Na+ makes it difficult for glucose to find a Na+ partner to ride the co-transport system in the reverse direction. By this mechanism, glucose can be pulled into the cell even against its concentration gradient. The energy for transporting glucose uphill against its concentration gradient comes from the energy dissipated by Na+ as it moves down its concentration gradient. The concentration gradient for Na+ is maintained by a primary active transport pump, which is driven by energy released by the splitting of ATP, so that ATP is indirectly involved in this co-transport example. Similar co-transport systems exist for other solutes.

Counter transport (6) is similar to co-transport, but now the two solutes move in opposite directions. In our example, there are binding sites for two different solutes, say Na+ (circles) and Ca++ (triangles). Again the carrier will not “rock” if only one of the sites is occupied. In order to “rock,” both sites have to be occupied (both Na+ and Ca++ have to be bound). Because the Na+ concentration is much higher than Ca++, it tends to dominate and keeps the counter transporter moving in a direction that allows Na+ to flow down its gradient (into the cell). It follows that Ca++ will flow out of the cell, even though the Ca++ concentration is higher outside the cell than in. Once again the energy dissipated by Na+ moving down its gradient is coupled to the uphill transport of another solute.

The positive effects of electrical forces on the ions is boosted by the SCIO treatment. The combination of electrical and concentration gradients is enhanced with the SCIO treatment.

**Summary Discussion**

Our Natural formula was shown in our study to help stimulate oxygenation, athletic performance and relief of minor aches and pains from an athletic program. Our study showed that it took four or five days for effects to be seen.

Continued measurement of the athletes on the product showed no major increase, other than those seen from the increase of their own training routines, which would produce heightened ability for muscle tone and oxygenation in and of itself.

The SCIO treatment provides a basic repair stimulation signal for cellular rejuvenation. Diseased tissue has a different type of electrical signature than healthy tissue. When the SCIO detects an injured tissue signal it responds with a curative stimulation electrical pattern to promote and speed healing. There are also many additional effects from the device to enhance sport performance in general.
The wellness of any organ or organism is determined by how well it uses oxygen. The basic blend of bee pollen, pangam saccromyces and herbs was taken from a formula used by the Hunzas in Pakistan and Russian athletes. The ages of people in this tribe have been known to reach one hundred forty years. They use this type of bee pollen and herbal mixture to stimulate digestion. Most bee pollens are difficult to digest, so many who take them do not get the full benefits from them. However our formula with the presence of various enzymes, can boost digestion, and thereby stimulate absorption of the oxygenation factors.

As we have shown in our study, there is a difference between our formula and other bee pollens. This is a dramatic distinction that can mean the difference between winning and losing a race. Thus for sports activity, memory enhancement and overall wellness the Oxygen Stimulator is an excellent suggestion.

**Oxygen Stimulator**

“Wellness in a bottle”

**New Vistas of Hungary,**

**Kálvária tér 2, Budapest, Hungary**

contact person: Christian Serbu

*Actual Components:* Brewers Yeast - 80%, Bee Pollen - 5%, Flower pollen 5%, Comfrey Pepsin (SYMPHYTUM OFFICINALIS) Herb 0.5%, Natural Binders 9.5%

*Manufacturing Process:* Brewers Yeast is dried and compressed with Flower Pollen, Herbs, and binders. All processed at room temperature.

*Ingredients contained in Natural Form:*

- RNA, DNA (pangam-saccromyces-Yeast type)
- Thiamine B1
- Riboflavin B2
- Niacin B3
- Pantothenic Acid B5
- Pyridoxine B6
- Choline B11
- Biotin B10
- Folic Acid B9
- Pangamic Acid B15 (pangam saccromyces- Yeast carrier)
- B16, B17, B18, B19, B20 --all natural source
- Hunzas Bee Pollen
- Zinc Aspartate (chelated)
- Comfrey Pepsin
- Free Fatty Acids
- Minerals- Calcium, Phosphorous, Potassium, Magnesium
- Trace Minerals- Iron, Tin, Zinc, Manganese,
Fats protein:

energy contents: 1500 KJ/100 gr / 4,8 KJ/1 pir

160 pills at .45g each

Dietary accessories with natural B vitamin. Spray dried saccromyces.

Dosage: to children 3x2 pills / day (below 6)
To adults 5 pills at bed / 3 in morning

Storage: dry, above 20 C⁰, below 35 C⁰
How to Improve B-Vitamin Absorption

Eight substances make up the vitamin B complex, including thiamine, riboflavin, niacin, pantothenic acid, biotin, folic acid, vitamin B6 and vitamin B12. Poor absorption of these substances can result in diseases caused by vitamin B deficiencies, like beriberi, pellagra and pernicious anemia. These problems are generally not an issue in the United States because of the availability of food, according to Colorado State University -- but you may address certain health problems by improving your vitamin B absorption.

Step 1
Eat a diet rich in protein, green vegetables and enriched grain products. Your body cannot store any of the substances included in the vitamin B complex -- you must replenish your body’s vitamin B stores every day. Eat a balanced diet to improve the way your body absorbs the B vitamins.

Step 2
Increase your consumption of animal protein. The cells in your stomach lining produce a special protein, called intrinsic factor, which helps you absorb vitamin B12 efficiently. Eating animal protein
stimulates the production of intrinsic factor. Eat protein rich foods throughout the day. Vitamin B12 binds to protein in your digestive tract before your body absorbs it.

Step 3
Manage chronic conditions and stay healthy. Diseases like pernicious anemia cause immune system damage to your stomach lining cells that may result in low levels of intrinsic factor and poor vitamin B12 absorption. Inherited conditions and acquired diseases, like beriberi, may also cause insufficient absorption of thiamine, or vitamin B1. Manage your vitamin B6 deficiencies to increase absorption of vitamin B12. Deficiencies in vitamins B6 and B12 can cause anemia, which means your blood cannot carry enough oxygen to the cells in your body.

Step 4
Avoid alcohol, which can interfere with the way your body absorbs folic acid. Discuss all medications with your physician. Medicines like potassium supplements or acid-reducing drugs prevent absorption of vitamin B12 in some people.

Step 5
Consume animal sources of riboflavin, which is easier for your body to absorb than vegetable sources. Vitamin Basics states that at least 90 percent of the riboflavin in milk is in a free form which is more easily absorbed. Riboflavin is bound to proteins in most other sources, like in vegetables or whole grains.

Step 6
Improve your riboflavin absorption by maintaining a healthy balance of the other vitamins included in the B complex. Riboflavin, or vitamin B2, works with other vitamins B to release energy from carbohydrates, among other physiological tasks such as body growth and red blood cell production. Riboflavin is sensitive to exposure to light, so shield food high in riboflavin, like eggs and dairy products, from light.
High dose B vitamins help prevent Alzheimer’s, says researchers

By Oliver Nieburg+  
21-May-2013

Related tags: B Vitamins, Alzheimer's Disease, Brain, Oxford University, Vitamin B12, Vitamin B6, Folic acid, Dementia, Mild cognitive impairment, Placebo

A new study is suggesting that a high dose of B vitamins could stop the onset of Alzheimer's by preventing shrinkage of the medial temporal lobe, the area of the brain that defines the disease.

The research by Douaud et al. published in the Proceedings of the National Academy of Sciences found that this part of the brain shrank slower in people with mild cognitive impairment when they took B Vitamins.

To reach these conclusions, the researcher gave 156 elderly people with mild cognitive impairment, the stage before dementia or Alzheimer’s, a combination of vitamin B12 (500 mcg), B6 (20 mg) and folic acid or placebo pills over a two year period.
The 80 subjects receiving B Vitamins showed significantly less brain degeneration than the placebo group.

**Disease shrinks eight times**

Lead researcher David Smith of Oxford University said: "In those with high homocysteine levels, the specific areas of the brain associated with Alzheimer’s, disease shrank eight times more slowly in those taking B vitamins than in those on the placebo."

"This is strongly indicative that the B vitamins may be substantially slowing down, or even potentially arresting, the disease process in those with early stage cognitive decline."

"This is the first treatment that has been shown to potentially arrest Alzheimer's related brain shrinkage."

**Research Author: Elderly could benefit**

Previous research has shown that raised levels of plasma total homocysteine (tHcy) are associated with cognitive impairment, Alzheimer’s Disease, or vascular dementia.

The present study concluded that B-vitamin treatment could lower mean plasma tHcy levels by 29%.

Smith said: "This makes the need for early screening for the first signs of cognitive decline from the age of 50...vitaly important, backed up by homocysteine testing and potential B vitamin treatment.

"Our study shows that those with a homocysteine level above 10mc mol/l, which is about half of all people over age 65, potentially may benefit with reduced brain shrinkage by taking high dose B6, B12 and folic acid, but this should be done under medical supervision."

**Source:**
Proceedings of the National Academy Sciences (In Press)
‘Preventing Alzheimer’s disease-related gray matter atrophy by B vitamin treatment’
Authors. Douaud, G., et al.
FIND OUT WHAT B VITAMINS can do for your skin

**B1 (THIAMINE)**
A powerful anti-oxidant that prevents signs of aging.
- Yeast
- Pork

**B2 (RIBOFLAVIN)**
Facilitates normal reproduction, cell growth and repair, and development of tissues. Helps secretion of mucus in the skin which may clear up rosacea.
- Almonds
- Mushrooms

**B5 (PANTHENOL)**
Soothes, softens, and moisturizes skin.
- Honey
- Molasses

**B6 (PYRIDOXAMINE)**
Prevents the production of excess sebum (helping to prevent and treat acne).
- Whole Grains
- Beef

**B9 (FOLIC ACID)**
Gives the skin a healthy, natural glow.
- Spinach
- Broccoli

**B12 (COBALAMIN)**
Helps to repair skin cells.
- Fish
- Meat

**B3 (NIACIN)**
Improves skin cells efficiency and firmness.
- Poultry
- Eggs

The 24K Multi-Vitamin products contain several B vitamins
DEFICIENCY SYMPTOMS

By Walter Last

Eye, hair, nail, mouth and skin symptoms are among the early outward warning signs of vitamin and mineral deficiencies. The following compilations may help in diagnosing and treating these deficiencies. However, increased metabolic requirements for indicated deficiencies may persist for a long time after the outward symptoms have disappeared. Many listed symptoms may also be caused or aggravated by allergies and problems with the blood sugar and fat metabolism.

The right-hand column gives the primary deficiencies first, additional treatment or cause is given in parentheses. For each condition only the more prominent nutrients are mentioned. However, all the typical nutrients should be supplied in increased amounts in the treatment of all conditions.

Eye-deficiency Symptoms

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Deficiency / treatment / cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bitot's spots - foamy patches on conjunctiva</td>
<td>vitamin A</td>
</tr>
<tr>
<td>Bloodshot eyes</td>
<td>boric acid for fungus infection, blue light</td>
</tr>
<tr>
<td>Blurred vision</td>
<td>vitamins B2, B6, pantothenic acid</td>
</tr>
<tr>
<td>Bulging eyes</td>
<td>vitamin E, nicotinamide, iodine</td>
</tr>
<tr>
<td>Cataracts (lens becomes opaque)</td>
<td>vitamins B2, C, E, antioxidants (avoid lactose)</td>
</tr>
<tr>
<td>Color-blindness</td>
<td>vitamin A</td>
</tr>
<tr>
<td>Conjunctivitis</td>
<td>vitamins A, B2, C (B6, zinc)</td>
</tr>
<tr>
<td>Cross-eyes</td>
<td>vitamins E, C, B1, (allergy testing)</td>
</tr>
<tr>
<td>Dark spots in front of the eyes</td>
<td>vitamins B6, C, zinc (liver problems)</td>
</tr>
<tr>
<td>Dim vision (amblyopia)</td>
<td>vitamins B1, B2, C, B12 (allergy testing)</td>
</tr>
<tr>
<td>Dry, hard eyeballs (xerophthalmia)</td>
<td>vitamin A</td>
</tr>
<tr>
<td>Farsightedness (hyperopia)</td>
<td>magnesium, potassium, MSM</td>
</tr>
<tr>
<td>Glaucoma</td>
<td>magnesium, vitamin C (B2, B1, salt)</td>
</tr>
<tr>
<td>Hemorrhaging in the back of the eye (retinitis)</td>
<td>vitamin B6, zinc, bioflavonoids (also magnesium, vitamins C, B2, B12, E, pantothenate)</td>
</tr>
<tr>
<td>Infected, ulcerating eyes (keratomalacia)</td>
<td>vitamin A (vitamins C, B2, B6, zinc, blue light, boric acid)</td>
</tr>
<tr>
<td>Itching, burning, watery, sandy eyes</td>
<td>vitamin B2</td>
</tr>
<tr>
<td>Macular degeneration</td>
<td>vitamins A, B2, B6, magnesium, zinc, antioxidants, bioflavonoids, esp. lutein &amp; zeaxanthin, ginkgo biloba, bilberry, eyebright, MSM, EFA</td>
</tr>
<tr>
<td>Near-sightedness (myopia)</td>
<td>chromium, vitamins C, E, D, calcium (proteins, avoid sugars)</td>
</tr>
<tr>
<td>Night blindness (nyctalopia)</td>
<td>vitamins A, (B2, B6, zinc)</td>
</tr>
<tr>
<td>Red blood vessels in the sclera</td>
<td>vitamin B2</td>
</tr>
</tbody>
</table>
Retinal detachment: zinc, vitamins B₆, B₂, C, E, A
Sensitive eyes, fear of strong light (photophobia): vitamins B₂, A
Tics of eyelids: magnesium, vitamins B₂, B₆, zinc

Skin-deficiency Symptoms

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Deficiency / Treatment / Cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acne</td>
<td>vitamins A, E, B₂, B₆, C, niacin, biotin, zinc, EFA*, lecithin, MSM, retinoic acid topically (minimize sweet food &amp; fats)</td>
</tr>
<tr>
<td>Addison's disease - adrenal exhaustion: increased tanning, especially on skin-folds, scars, elbows, knees; black freckles</td>
<td>all B vitamins, especially pantothenic acid; vitamin C; all minerals, digestive enzymes, allergy testing, avoid sweet food</td>
</tr>
<tr>
<td>Arterial spiders (fine branching arteries on face, neck, chest)</td>
<td>antioxidants, bioflavonoids, glucosamine, cartilage, calcium</td>
</tr>
<tr>
<td>Bedsores</td>
<td>vitamins C, E</td>
</tr>
<tr>
<td>Blisters</td>
<td>vitamin E</td>
</tr>
<tr>
<td>Brown discoloration around small joints</td>
<td>vitamin B₁₂</td>
</tr>
<tr>
<td>Brown skin spots</td>
<td>antioxidants (weak liver)</td>
</tr>
<tr>
<td>Dry skin</td>
<td>vitamins A, C, EFA</td>
</tr>
<tr>
<td>Eczema, skin ulcers</td>
<td>vitamin C, B₂, B₆, zinc, magnesium, EFA, allergy test, cleanse</td>
</tr>
<tr>
<td>Eczema, infantile</td>
<td>EPA, zinc, vitamin B₆</td>
</tr>
<tr>
<td>Edema</td>
<td>vitamin B₆, zinc (also vitamin C, magnesium, avoid salt)</td>
</tr>
<tr>
<td>Fingers white, numb, stiff, swellings (Raynaud's disease)</td>
<td>vitamins B₆, B₁, antioxidants, niacin, magnesium/calcium, EFA</td>
</tr>
<tr>
<td>Fungus infections (e.g. athlete's foot, ringworm)</td>
<td>B vitamins, (external tea tree oil, intestinal sanitation)</td>
</tr>
<tr>
<td>Gangrene</td>
<td>vitamins C, E, B₁ , magnesium chloride, (urine packs)</td>
</tr>
<tr>
<td>Greasy dermatitis around eyes, nose</td>
<td>vitamin B₆, zinc</td>
</tr>
<tr>
<td>Greasy skin eruptions (seborrhea)</td>
<td>vitamin B₂</td>
</tr>
<tr>
<td>Horny red skin on pressure areas (e.g. knees, elbows)</td>
<td>zinc (vitamin B₆)</td>
</tr>
<tr>
<td>Hot flushes</td>
<td>vitamin E, boron, magnesium, calcium (Wild Yam cream)</td>
</tr>
<tr>
<td>Ichthyosis (fish-like scales)</td>
<td>vitamin A, retinoic acid topically, MSM</td>
</tr>
<tr>
<td>Infant dermatitis with inflamed pustules around body openings</td>
<td>vitamin B₆, zinc</td>
</tr>
<tr>
<td>Infections of the skin (boils, cold sores, impetigo, and so on)</td>
<td>vitamins C, A, B₆, zinc, magnesium chloride (hot Epsom-salt packs, tea tree oil or propolis rubs)</td>
</tr>
<tr>
<td>Itching</td>
<td>vitamins B, C, EFA, alkalizer, bicarbonate rubs, (allergy tests)</td>
</tr>
<tr>
<td>Condition</td>
<td>Recommended Vitamins/Supplements</td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>-----------------------------------------------------------------------</td>
</tr>
<tr>
<td>Jaundice</td>
<td>vitamins C, E, A, B₁₂, B₆, lecithin, magnesium, zinc (blue light therapy, treat gall bladder &amp; liver)</td>
</tr>
<tr>
<td>Keratosis, horny, goose-pimple-like skin</td>
<td>vitamin A internally &amp; externally</td>
</tr>
<tr>
<td>Lemon-yellow skin</td>
<td>vitamin B₁₂</td>
</tr>
<tr>
<td>Oily skin, white-heads</td>
<td>vitamin B₂</td>
</tr>
<tr>
<td>Over-sensitivity to sunlight</td>
<td>vitamin B₆, zinc, PABA, beta-carotene, antioxidants, bioflavonoids, alkalizers</td>
</tr>
<tr>
<td>Pale skin</td>
<td>biotin, folic acid, vitamin B₆, iron (anemia)</td>
</tr>
<tr>
<td>Prickly-heat rash</td>
<td>vitamin C</td>
</tr>
<tr>
<td>Psoriasis</td>
<td>as for acne; blue light, sunlight; avoid gluten</td>
</tr>
<tr>
<td>Purplish or blue-black skin areas</td>
<td>vitamin C, B₂, bioflavonoids</td>
</tr>
<tr>
<td>Rash</td>
<td>allergy test, alkalizers, vitamin C, calcium</td>
</tr>
<tr>
<td>Red-brown, often symmetrical discoloration of skin exposed to the sun, later ulceration</td>
<td>niacin or nicotinamide (folic acid)</td>
</tr>
<tr>
<td>Red-brown or dark-red spots</td>
<td>manganese</td>
</tr>
<tr>
<td>Rosacea (redness of part of face)</td>
<td>vitamin B₂</td>
</tr>
<tr>
<td>Scaly dermatitis</td>
<td>biotin</td>
</tr>
<tr>
<td>Scaly eczema around nose, ears, scrotum, vulva</td>
<td>vitamin B₂</td>
</tr>
<tr>
<td>Scar tissue</td>
<td>vitamin E, MSM externally &amp; internally, camphorated oil rub</td>
</tr>
<tr>
<td>Scleroderma (hardening and swelling of skin)</td>
<td>vitamin E, C, A, PABA, MSM, magnesium chloride (zapper, pulser and parasite therapy, tea tree oil packs)</td>
</tr>
<tr>
<td>Sensitivity to insect bites</td>
<td>vitamin C, B₁, calcium, alkalizers, bicarbonate rub/bath</td>
</tr>
<tr>
<td>Shingles</td>
<td>vitamins B₁₂, C, A, B, E, zinc, lysine, zinc oxide lotion, zapper</td>
</tr>
<tr>
<td>Skin cancer</td>
<td>vitamins A, B₆, PABA, antioxidants, bioflavonoids, carotenones, chlorophyll, propolis, zinc (blue light, escharotics)</td>
</tr>
<tr>
<td>Skin-folds red, infected</td>
<td>niacin</td>
</tr>
<tr>
<td>Stretch-marks</td>
<td>vitamins E, B₆, zinc</td>
</tr>
<tr>
<td>Subcutaneous bleeding (red or purplish spots under the skin, bruises easily)</td>
<td>vitamin C, bioflavonoids and rutin, grape seed extract, glucosamine, alkalizer</td>
</tr>
<tr>
<td>Swellings (for example, face)</td>
<td>zinc, magnesium, vitamins B₆, B₁₂</td>
</tr>
<tr>
<td>Vaginal itching</td>
<td>vitamins B₂, E, C (avoid synthetic underwear, treat Candida)</td>
</tr>
<tr>
<td>Warts, moles</td>
<td>vitamins C, A, E</td>
</tr>
<tr>
<td>Weals on the skin (urticaria)</td>
<td>vitamin B₆, zinc, vitamin C, (alkalizer, allergy test)</td>
</tr>
<tr>
<td>White skin patches (vitiligo)</td>
<td>PABA, pantothenic acid, vitamin B₆, zinc</td>
</tr>
<tr>
<td>Wrinkles or aging skin</td>
<td>vitamins C, E, A, EFA, bioflavonoids (too much sun)</td>
</tr>
</tbody>
</table>
* Most skin conditions benefit from external as well as internal application of the indicated nutrients. Retinioic acid is the acid form of vitamin A. EFA means essential fatty acids, mainly linoleic and linolenic acid; recommended are ground-linseed, linseed oil, fish oils and Evening-primrose oil.

## Hair and Nail Deficiency Symptoms

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Deficiency treatment cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coarse, brittle hair</td>
<td>zinc</td>
</tr>
<tr>
<td>Dandruff</td>
<td>vitamins B₂, B₆, zinc, magnesium, biotin</td>
</tr>
<tr>
<td>Dry hair</td>
<td>vitamin A, zinc</td>
</tr>
<tr>
<td>Graying hair</td>
<td>folic acid, pantothenic acid, PABA, biotin, minerals (weak adrenals, avoid sweet food)</td>
</tr>
<tr>
<td>Hangnails</td>
<td>vitamin C, folic acid, proteins</td>
</tr>
<tr>
<td>Hair loss</td>
<td>copper/lead contamination: use zinc, vitamin B₆, sulfur (MSM), selenium, biotin</td>
</tr>
<tr>
<td>Nails opaque, white spots/bands</td>
<td>zinc, vitamin B₆</td>
</tr>
<tr>
<td>Oily hair</td>
<td>vitamin B₂</td>
</tr>
<tr>
<td>Peeling nails</td>
<td>vitamins A, C, calcium</td>
</tr>
<tr>
<td>Ridges on nails, longitudinal</td>
<td>vitamin A, protein, calcium (anemia, poor circulation, thyroid/parathyroid glands)</td>
</tr>
<tr>
<td>Ridges on nails, transverse</td>
<td>fever, infection, inflammation, menstrual problems, period of protein deficiency</td>
</tr>
<tr>
<td>Scaling of cuticle or lips</td>
<td>biotin</td>
</tr>
</tbody>
</table>

With graying hair or hair loss improve the circulation to the scalp, e.g. daily inversion such as headstand, shoulder-stand, hanging upside down or using a slant-board. Also vigorously rubbing nourishing or slightly irritating solutions into the scalp, e.g. fresh grass or vegetable juice, MSM with copper salicylate, ginger juice.

## Tongue and Mouth Deficiency Symptoms

Mouth problems are often due to amalgam fillings, allergies or Candida infestation (thrush).

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Deficiency treatment cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beefy, enlarged tongue</td>
<td>pantothenic acid</td>
</tr>
<tr>
<td>Burning, sore tongue</td>
<td>vitamins B₂, B₆, B₁₂, niacin</td>
</tr>
<tr>
<td>Cracked lips &amp; corners of the mouth (cheilosis)</td>
<td>vitamins B₂, B₆, folic acid</td>
</tr>
<tr>
<td>Distended, purplish-blue veins under the tongue</td>
<td>vitamin B₂ (circulation poor, congested)</td>
</tr>
<tr>
<td>Edema or tooth-marks on tongue</td>
<td>niacin/nicotinamide</td>
</tr>
<tr>
<td>Furrowed tongue</td>
<td>vitamin B₁, pantothenic acid</td>
</tr>
<tr>
<td>Gums receding, bleeding (gingivitis)</td>
<td>vitamin C, bioflavonoids, calcium, alkalizers</td>
</tr>
<tr>
<td>Halitosis (bad breath)</td>
<td>vitamin B₆, zinc, magnesium, propolis, chlorophyll (cleansing, intestinal sanitation)</td>
</tr>
<tr>
<td>Condition</td>
<td>Treatment/Remedies</td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>-----------------------------------------</td>
</tr>
<tr>
<td>Mouth ulcers, canker</td>
<td>folic acid, vitamin B&lt;sub&gt;6&lt;/sub&gt;, zinc (alkalize, allergy test)</td>
</tr>
<tr>
<td>Papillae prominent or erased</td>
<td>niacin/nicotinamide</td>
</tr>
<tr>
<td>Purplish or magenta tongue or lips, also veins under the tongue</td>
<td>vitamin B&lt;sub&gt;2&lt;/sub&gt;</td>
</tr>
<tr>
<td>Tongue red at tip or edges; severe deficiency: whole tongue scarlet red, sore</td>
<td>niacin (vitamin B&lt;sub&gt;6&lt;/sub&gt;)</td>
</tr>
<tr>
<td>Tongue shiny, smooth, beefy; early sign: strawberry-red tip/sides</td>
<td>vitamin B&lt;sub&gt;12&lt;/sub&gt;, folic acid</td>
</tr>
<tr>
<td>Tongue too small or too large</td>
<td>niacin, pantothenic acid</td>
</tr>
<tr>
<td>White-coated tongue</td>
<td>intestinal putrefaction, cleansing</td>
</tr>
<tr>
<td>White patches on tongue</td>
<td>vitamin B&lt;sub&gt;2&lt;/sub&gt; and other B vitamins (allergy)</td>
</tr>
<tr>
<td>Yellowish-brown-coated tongue</td>
<td>liver or gall bladder problems</td>
</tr>
</tbody>
</table>
Anything SInthetic is an INSULT to our Bodies

Here is the simple condensed, essence of what we need to know, we need to stop insulting our bodies on every visit to the doctor just to make profits from their patents, doctors need to be taught reverence for nature, and the first and second interventions should be life style and natural as possible, then if these fail the third line of intervention should be SInthetic, because there is a time for all things under heaven, even for SInthetics, but they should not be our first line of defense.

Desire Dubounet - Scientist, Lawyer, Doctor, Professor

Nature Has More Chemicals that create synergy

But Beyond the Chemistry is the Energy of Life. The extra energy of the Quantum Energy States of the Electrons + the Anti-Entropy Quantum energy of Nature + Life
1. The Synthetic drug companies do not know how to properly place the electrons around the atoms in making a drug. Nature uses QED via Photosynthesis to put some of the electrons into high energy quantum states. This is how we get energy and life.

2. The Synthetic Drug companies use antiquated outdated reductionism philosophy to assemble and test their drugs. The Fractal Complexity of Nature with it’s incredible complexity must be revered rather than ignored. The height of IGNORANCE is to ignore nature. An IGNORANCE that makes money.

3. There is no study known that ever shows a synthetic drug completely equivalent to its natural counterpart. The reductionism studies only measure the required variables. They DO NOT measure side effects. Side effects are observed and often only observed years or decades later. The laws and the FDA protect them.

4. Side Effects dominate and proliferate the Synthetic Drug scene. Look at the Physician Drug Reference and see that all drugs have a list often a long list of side effects. This is not natural. Almost Every year over a hundred drugs are removed from the market because they are hurting people. It’s just a matter of time before the hurtful side effects are seen.

5. Our society has now learned conclusively that synthetic foods are incompatible with health. We have now rejected all synthetics and we know that the finest quality comes from the natural. It is the next step of simple human consciousness and thought to see clearly that synthetic drugs are incompatible with the human body.