Amino Acids and Alcoholism

Alcoholism intoxication and dependence is one of the most pervasive mental disorders in the United States. There are approximately 15.4 million adults that have serious alcohol-related problems. Teens and adolescents rate a close second with 4.6 million having serious alcohol-related problems. Alcoholism is ranked the number two killer in this country behind cancer and many believe alcoholism actually outranks cancer. Alcohol affects 65 million in the U.S.

Alcohol is the number one drug of abuse in the U.S. The cost to the economy approaches $115 billion every year. Alcoholics constitute a large group of potential suicidal risks, particularly older males, living alone with no family and suffering from chronic health problems. Alcohol is known to induce depression. This causes a depletion of neurotransmitters needed by the brain. Alcoholics present a number of neurological syndromes attributed to vitamin and amino acid deficiencies. Alcohol increases urinary excretion of magnesium and zinc.

Although no specific type of personality appears to predispose a person to develop drug or alcohol addiction, stress, anxiety, depression, and especially unresolved feelings seem to increase the potential. Specific personality traits may become more prominent in certain situations. The introvert may become extroverted, the gentle one violent, the sensitive one insensitive, and so on. In the early stages those with alcohol problems become more irritable, moody, and depressed when not drinking. He denies that he is drinking too much, blaming his drinking on his stress, his job, or even his family.

Those with alcohol problems sees the world as close, threatening and depression producing. The alcoholic uses alcohol to solve his problems because they seem to diminish after a drink—his blood alcohol increases and the self-degenerating circuits of the brain are anesthetized. Alcoholism is not a reaction to a situation, rather it is a basic primary drive as powerful hunger that has been established by and associated with chemical alcohol. The relief from the alcohol is only a temporary lift and relief from the depression is short-lived. Alcohol is a central nervous system depressant. After the high wears off the depression can intensify. Addiction is a vicious cycle and once the behavior is established the problems continue and intensify. Alcohol shares similar properties with many hypnotic and antianxiety drugs. Alcohol serves as courage for alcoholics since it works primarily on anticipatory anxiety. Most alcoholics live in a constant state of anxiety, have sleep disturbances, sexual dysfunction, as well as multiple nonspecific medical problems.

Alcoholics have a major problem with nutritional deficiencies that, in turn, cause many major health problems. Alcohol has a direct toxic effect on the pancreas, producing acute pancreatitis and hyperglycemia which is activated by chronic drinking. Chronic pancreatitis is common in alcoholics. A number of neurological syndromes occurring in chronic alcoholics can be attributed to vitamin deficiencies. The nutritional problems of alcoholics are more complex than those found in any other single group with addiction problems.

Magnesium deficiency is a major problem associated with symptoms of anxiety, depression, muscle spasm, tremors, and chronic pain. Deficiencies occur in anyone using addictive substances as well as chronic stress syndrome. He body as part of normal metabolism. In this process the average person makes about one ounce of alcohol per day, which is broken down in the liver by an enzyme called alcohol dehydrogenase. This enzyme also handles the alcohol ingested from alcoholic beverages.

In the next step, alcohol is converted by alcohol dehydrogenase to acetaldehyde, and this substance can damage the body in several ways:

1. It can cause abnormal chemical bonds in large molecules like proteins (causing hardening of the arteries, loss of elasticity, skin wrinkling).
2. It can damage the DNA molecule (resulting in abnormal cell function).
3. Damage can also result when acetaldehyde is oxidized in the body, yielding dangerous and reactive chemical fragments called free radicals; these can cause damage to many cell structures, cancer, birth defects, atherosclerosis, and are implicated as major factors in aging.

The acetaldehyde is a very toxic chemical, and the body breaks it down by the enzyme called aldehyde dehydroge-

### METABOLISM OF ALCOHOL

\[
\text{Alcohol} \rightarrow \text{alcohol dehydrogenase} \rightarrow \text{acetaldehyde}
\]

\[
\text{Acetaldehyde} \rightarrow \text{aldehyde dehydrogenase} \rightarrow \text{acetate (vinegar)}
\]

\[
\text{Acetate} \rightarrow \text{carbon dioxide + water}
\]
Researchers continue to look for the one cause of alcoholism. But all research has concluded that there is no one factor; studies have shown that a number of physiological differences exist between the nonalcoholic and the alcoholic. Physiology determines whether one person becomes alcoholic and another does not. The alcoholic’s body—his hormones, enzymes, genes, and brain chemistry—all work jointly to cause his abnormal reaction to alcohol. Of course, psychological, family history, and social factors certainly influence the alcoholic’s drinking habits and behavior.

Alcoholism and nutrition are interrelated and intertwined on many levels:

1. Ethyl alcohol, or ethanol, itself contains nutrients; however, it also changes the balance of other nutrients in the diet and may disperse them as well.

2. The absorption and digestion of many nutrients is affected by the ingestion of ethanol; it may alter dietary requirements.

3. In addiction, nutritional alterations may affect the metabolism of alcohol in the body.

4. Chronic alcohol consumption may cause temporary or permanent damage to many organs—the liver, brain, heart, and bone marrow. The effects may be modified by nutritional factors such as dietary intake of protein, fat, and vitamins.

5. Organ damage may yield changes in nutrient metabolism. The organ most affected is the liver. The liver plays an important role in metabolism and is frequently altered with alcohol ingestion.

Identifying the cause of malnutrition in alcoholism is not a simple matter. Certain groups of alcoholics may have an inadequate nutrient intake, but a major factor is the primary toxic effect of ethanol on the gastrointestinal tract, pancreas, liver, bone marrow, and other tissues such as the heart. Research data by Rubin and Lieber in 1974 suggested that a nutritious diet could not and will not prevent the development of alcoholic liver disease.

Alcoholic beverages provide mainly calories which are derived from their ethanol content. A pint of 86 proof liquor supplies about half the normal daily calories required by an adult, but these alcoholic calories are utterly empty of other nutrients. Ethanol does not even provide caloric food value equal to carbohydrates. If alcohol consumption is heavy and the drinker limits his food intake, he worsens his already severe vitamin and nutrient deficiencies. Conversely, if he does not reduce his food intake, many of the extra ethanol calories are converted to fat, causing high serum triglyceride levels and obesity.

Acute and chronic consumption of alcohol may markedly alter digestion and gastrointestinal absorption. Alcohol-induced changes in digestion and ab-
### Symptoms Of Alcohol Withdrawal (Late Or Severe)

<table>
<thead>
<tr>
<th>Worsening of mild symptoms of alcohol withdrawal</th>
<th>Delirium</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tremor</td>
<td>Changes from one hour to the next in severity and nature</td>
</tr>
<tr>
<td>Tachycardia</td>
<td>Impairment of thinking</td>
</tr>
<tr>
<td>Agitation</td>
<td>Disorientation as to time and place</td>
</tr>
<tr>
<td>Diaphoresis</td>
<td>Clouding of senses</td>
</tr>
<tr>
<td>Marked startle response</td>
<td></td>
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<table>
<thead>
<tr>
<th>Delusions</th>
<th>Seizures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paranoia</td>
<td>Usually generalized and nonfocal</td>
</tr>
<tr>
<td>Mixed with and reinforced by hallucinations</td>
<td>History of prior seizure disorder not necessary</td>
</tr>
<tr>
<td>Can create agitation and terror</td>
<td>Usually occurs within 48 hours after cessation of drinking</td>
</tr>
<tr>
<td></td>
<td>Usually self-limiting</td>
</tr>
<tr>
<td></td>
<td>Always precede severe delirium, agitation, and hallucinations</td>
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</tbody>
</table>

| Hallucinations                                 | |
|------------------------------------------------| Can be visual, auditory, or tactile |
|                                                | Can be threatening in nature |

Absorption may yield marginal deficiencies or augment deficiencies arising from other causes.

A number of neurological syndromes occurring with the chronic usage of alcohol are attributed to vitamin deficiencies. Just to name a few, these include: Wernicke’s disease, Korsakoff’s syndrome, peripheral neuropathy, Morél’s carotid sclerosis, and cellular degeneration. Alterations in the metabolism of the B vitamins in the alcoholic person affect the levels in his body. Commonly, the level of B1 (thiamine), B3 (niacin), B6 (pyridoxine), B12, B15, and folic acid are decreased in the alcoholic. Anemias are seen with deficiencies of folic acid or B6 while deficiencies of niacin or thiamine may cause neurological symptoms.

The metabolism of the fat-soluble vitamins may be altered due to the alcohol ingestion. In alcohols with cirrhosis, vitamin A deficiencies may occur; this is due to malabsorption, impaired liver storage of vitamin A, or to simply too much alcohol in the body competing in the liver. Vitamin D may be depleted through dietary insufficiency. Vitamin K deficiency in the alcoholic may manifest itself as a bleeding disorder related to the liver’s failure to make clotting factors.

Mineral deficiencies can be caused by alcohol, especially magnesium and zinc; alcohol increases the excretion of magnesium and zinc via the kidneys. Magnesium depletion can be responsible for the symptoms of the “horror” or delirium tremors. Low levels of calcium have been found due to increased excretion of calcium in the urine over a period of years; this can lead to osteoporosis.

The excessive intake of alcohol is one factor which precipitates clinical vitamin deficiencies. This depletion usually includes many of the vitamins, but the most common are: folic acid, thiamine, riboflavin, niacin, B6, B12, and vitamin C. Mineral depletion usually includes magnesium and zinc. A protein deficiency usually exists due to malnutrition. The alcoholic has a wide range of deficiencies and needs nutritional supplementation.

### Alcohol/Drug-Induced Nutritional Deficiencies

<table>
<thead>
<tr>
<th>Vitamins Depleted</th>
<th>Minerals Depleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Folic acid</td>
<td>Magnesium</td>
</tr>
<tr>
<td>Thiamine</td>
<td>Zinc</td>
</tr>
<tr>
<td>Niacin</td>
<td></td>
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<tr>
<td>Riboflavin</td>
<td></td>
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<tr>
<td>Ascorbic acid (Vitamin C)</td>
<td></td>
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<tr>
<td>Vitamin B6</td>
<td></td>
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<tr>
<td>Vitamin B12</td>
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### Treatment

Treatment for and control of the ingestion of alcohol requires a team effort. Good nutrition can help in the control by maintaining an adequate blood sugar level. Dr. Robert Meiers has found a low blood sugar level (hypoglycemia) in 95% of alcoholics; this results from the lack of food intake and substituting alcohol for essential calories and nutrients. Hypoglycemia has been implicated as one of the contributing factors in the cause of alcoholism. If the blood sugar drops, the alcoholic needs a drink. Blood sugar can be controlled by taking chromium picolinate 400 mcg daily helps to normalize blood sugar. Chromium picolinate is known as the glucose toler-

### Factors Leading To Malnutrition In Alcoholism

1. **Decreased or sporadic food ingestion**
   - Intoxication
   - Poverty and economic factors
   - Abnormal appetite
   - Anorexia
   - Mental illness/disease

2. **Increased nutrient losses**
   - Urinary
   - Toxic effects of alcohol on the kidneys
   - Fecal
     a) Malabsorption due to GI effects of alcohol
     b) Maldigestion due to inflamed pancreas

3. **Reduced or deficient nutrient stores**
   - Decreased uptake of nutrients
   - Alcoholic hepatitis
   - Cirrhosis (inflammation of liver)
   - Reduced nutrient intake
   - Increased inactivation of vitamins and nutrients

4. **Impaired nutrient utilization due to defective metabolism**
   - Alcoholic liver disease
   - Toxic effects of alcohol on bone marrow
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Ester C
1,000 mg in the morning and evening

DLPA*
2 capsules with each meal

Pyridoxine (B6) 150 mg
1 time released in the morning

GABA 750
1/2 capsule in water in morning and afternoon

Super Glutamine Powder
1,000 mg per scoop. Can be used with a T-L Vite in place of Brain Link if preferred.

*NOTE: Do not take DLPA if you have PKU (phenylketonuria) or if you are taking MAO or tricyclic antidepressants or have had a melanoma.

This same program is used for cocaine and other recreational drugs in the same dosages. This program can be used as long as necessary.

We would like to mention here, and strongly recommend that if you have an alcohol or substance abuse problem, seek out a psychotherapist or behavior therapist that you can work with and get counseling for yourself and your family. If you are the child of an alcoholic you are predisposed to an addictive personality and should seek counseling.

Children of alcoholics have the same neurotransmitter imbalances as their parents or even grandparents. The deficiencies can show up in many ways such as A.D.D. This means the child has a glutamine deficiency that must be corrected. Use Brain Link daily and Super Glutamine powder 1,000 to 3,000 mg daily as needed. If anxiety is a problem use Anxiety Control; if under 75 lbs. take 1 capsule or if over 75 lbs. take 2 capsules 2 times daily. Many teachers will suggest Ritalin; do not think this is the answer, it is not. Address deficiencies in the brain with Brain Link and glutamine. Ritalin is addictive and is not the answer for children of alcoholics. Memory and concentration problems are commonly associated not only with alcoholics but children of alcoholics.

Once you have reached your goal and no longer crave alcohol or other recreational substances you may alter the amounts of nutrients to what you need. The following may be used to maintain sobriety, and remember you can restart any of the supplements listed earlier.

Brain Link
1½ scoops in the morning

B.N.C.
1 twice daily

DLPA
Use together.
1 capsule with each meal

Anxiety Control
2 caps morning and afternoon. Increase to a total of 6 daily, divided, if needed.

Glutamine
1 scoop (1000 mg) afternoon

5-HTP
(For sleep problems)
1 (50 mg) 30 minutes prior to bed.

References Upon Request.

This information is not intended to give medical advice replace the services of a physician or other health care professional.

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