

Alcohol-Induced Hangover: Prevention

- Protection
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- Summary

If you are reading this book, you are probably interested in life extension and antiaging concepts. Aging makes us increasingly vulnerable to alcohol-induced hangover, liver injury, and damage to the central nervous system. Because alcohol consumption produces toxic compounds and causes vitamin deficiencies, in the best of all possible worlds it would be better not to drink alcohol at all. For those who still want to drink, it is possible to do so more safely. The first piece of advice would be to drink only moderately and follow the preventive measures outlined in this protocol.

Warning: What follows is for those who choose to drink moderately. This advice is not for those who suffer from alcoholism. Simply put, an alcoholic has "lost the power of choice in drink" and is "without defense against the first drink." In short, an alcoholic cannot drink safely. The Foundation is all too aware that an alcoholic may easily misinterpret the following information as a license to drink. It is not. It is only for those who drink by choice and do so in moderation.

The consumption of alcohol results in the formation of two very toxic compounds, acetaldehyde and malondialdehyde. These compounds generate massive free-radical damage to cells throughout the body. The free-radical damage generated by these alcohol metabolites creates an effect in the body similar to that caused by radiation poisoning. That is the reason why people feel so sick the day after consuming too much alcohol. If the proper combination of antioxidants is taken at the time the alcohol is consumed or before the inebriated individual goes to bed, the hangover and much of the cellular damage caused by alcohol may be prevented.

Aging makes us increasingly vulnerable to alcohol-induced hangover, liver injury, and damage to the central nervous system. In the elderly, alcohol- and drug-induced injury are more common and more serious, and recovery is more difficult.

PROTECTING AGAINST HANGOVER AND CELLULAR DAMAGE

- Garlic
- SAME

Nutrients that neutralize alcohol byproducts and protect cells against the damaging effects of alcohol include vitamin C, vitamin B1, the amino acids S-allyl-cysteine and glutathione, vitamin E, and selenium (Sprince et al. 1975; Hell et al. 1976; Loguercio et al. 1993; van Zandwijk 1995; Marotta et al. 2001). There are several commercial preparations that can be taken at the time the alcohol is consumed or before bedtime to help prevent a hangover. One of these is called Anti-Alcohol Antioxidants. The ingredients in this formula will help prevent hangover while providing protection against the damaging byproducts of alcohol metabolism.

A study in the journal *Alcohol* showed how antioxidants could protect against brain damage. The study concluded by stating:

chronic pretreatment with vitamin E prevents alcohol-induced vascular injury and pathology in the brain (Altura et al. 1999).

Another study in the journal *Artery* confirmed a specific toxic metabolite of alcohol (acetaldehyde) and identified an antidote (N-acetyl-cysteine) (Vasdev et al. 1995). Here is an excerpt:

All known pathways of ethanol metabolism result in the production of acetaldehyde, a highly reactive compound. N-acetyl cysteine, an analogue of the dietary amino acid cysteine, binds acetaldehyde, thus preventing its damaging effect on physiological proteins.

These findings should not surprise anyone who understands that the ingestion of alcohol inflicts massive free-radical damage throughout the body. When a person is exposed to a known toxic substance (such as alcohol), it makes sense to take an antidote (antioxidants) to provide at least partial protection against the short-term (hangover) and long-term (degenerative disease) effects.

Another product that people who drink alcohol may use is Kyolic Garlic Formula 105. Garlic contains S-allyl-cysteine, a neutralizer of acetaldehyde; this particular Kyolic-brand formula also contains vitamins C and E, beta-carotene, and selenium. Because the heavy consumption of alcohol produces many deleterious effects within the body, including an increased risk of cancer, liver disease, and neurological disease, it is suggested that hangover-prevention formulas such as Kyolic Garlic Formula 105 and/or Anti-Alcohol Antioxidants be taken any time alcohol is consumed.

S-Adenosylmethionine (S-AMe)

Generation of free radicals is one result of ethanol consumption. As has already been discussed, supplementing with the right antioxidants while consuming ethanol significantly reduces consequences of these free radicals throughout the body. Ethanol also depresses an enzyme required to convert methionine into S-adenosylmethionine (S-AMe) (Mato et al. 1994), resulting in a deficiency of S-AMe. Alcohol-induced depletion of S-AMe can be overcome by S-AMe supplementation which restores hepatic S-AMe levels (Lieber 1997; 2000a; 2000b; 2000c).

Supplementation with 400-800 mg of S-AMe twice a day will help support healthy liver function. For those who cannot afford S-AMe, supplementation with 500 mg of trimethylglycine (TMG, also known as glycine betaine), 800 micrograms of folic acid, and 500 micrograms of vitamin B12, taken twice a day, could help the liver to synthesize S-adenosylmethionine.

OTHER TREATMENT

- Probiotics
- Magnesium
- Silibinin
- European Medications
- PPC

Probiotics

One of the reasons that 30% of alcoholics develop cirrhosis may be a leaky gastrointestinal system. According to research (Keshavarzian 1999), another factor might be a gut-derived endotoxin. This would suggest that the use of probiotic substances might aid in the prevention of cirrhosis or other liver damage. Probiotics are beneficial bacteria that help to recolonize the intestinal tract. Intestinal flora (bacteria) help our digestive system absorb nutrients and act as a protective barrier in keeping toxins out. Along with taking a probiotic formula, a supplement to nourish intestinal flora such as fructo-oligosaccharides (FOS) is recommended. FOS helps reduce the formation of toxic liver metabolites and therefore is beneficial to people with chronic liver problems.

Magnesium

Chronic alcohol consumption can constrict arteries in the brain and lead to neurological deficit (Thomson et al. 1988). Daily supplementation with 500-1500 mg of magnesium could help keep cerebral blood vessels open by blocking excess infiltration of calcium into endothelial cells.

Silibinin (Special Milk Thistle Extract)

Those who drink routinely might consider taking at least 500 mg a day of a special milk thistle extract called silibinin, which may have a protective effect on the liver (Flora et al. 1998). Silibinin is the most active constituent of silymarin. In Germany, silibinin is sold as a drug to treat liver diseases.

European Medications

European medications such as Picamilon (50 mg, three times a day) and Pyritinol (200 mg, three times a day) could help prevent and restore neurological function lost because of chronic ethanol intake. An expensive prescription drug called Nimotop (nimodipine), at the dose of 30 mg 3-4 times a day, can slowly repair central nervous system damage caused by excess alcohol intake.

PPC

Alcohol is most commonly associated with liver toxicity. The nutrients contained in Anti-Alcohol Antioxidants and other supplements discussed so far help to protect against hepatic injury. For those who consume large amounts of alcohol (i.e., binge

drinkers), a supplement called polyenylphosphatidylcholine (PPC) is recommended prior to alcohol consumption. The administration of PPC has been shown to provide significant protection against certain forms of alcohol-induced liver injury in animals via several unique mechanisms (Aleynik et al. 1999; Lieber 1997, 2000a; 2000b; 2000c). PPC also reduces gastric irritation (Anand et al. 1999). PPC is the active ingredient in a product called HepatoPro (formerly GastroPro). We suggest that four capsules of GastroPro be taken prior to heavy alcohol consumption. For light alcohol consumption, two capsules of GastroPro should be adequate. Each capsule of GastroPro contains 900 mg of PPC.

THE ASTRONOMICAL COST OF HANGOVERS

A study in *Annals of Internal Medicine* compiled the enormous cost of lost productivity induced by hangovers (Wiese et al. 2000). Here is an excerpt from this study:

The alcohol hangover is characterized by headache, tremulousness, nausea, diarrhea, and fatigue combined with decreased occupational, cognitive, or visual-spatial skill performance. In the United States, related absenteeism and poor job performance cost \$148 billion annually (average annual cost per working adult, \$2000). Although hangover is associated with alcoholism, most of its cost is incurred by the light-to-moderate drinker. Patients with hangover may pose substantial risk to themselves and others despite having a normal blood alcohol level. Hangover may also be an independent risk factor for cardiac death.

Based on these statistics, hangover causes a significant economic loss in the United States. The staggering cost of alcoholic hangover could be significantly mitigated if drinkers took the right antioxidants before going to bed.

SUMMARY

1. Drink in moderation if at all.
2. To protect the liver from toxic byproducts of alcohol consumption and to eliminate or reduce the effects of hangover, one of the following products may be taken
 - Anti-Alcohol Antioxidants, a total of 6 capsules should be taken when consuming alcohol, one for each alcoholic drink and the remainder before bedtime.
 - Kyolic Garlic Formula 105, 2-4 capsules may be taken daily for antioxidant protection. For use when consuming alcohol, take 2 capsules every 2 hours that alcohol is being consumed; 4 capsules should also be taken at bedtime.
4. SAME is a metabolite of the essential amino acid L-methionine and is crucial to liver detoxification. SAME may be depleted in consumers of alcohol because an essential enzyme in its natural production is inhibited. Supplemental SAME can restore normal levels and protect against liver damage. Take 400-800 mg daily.
5. Certain nutrients help raise levels of SAME in the liver and are an alternative if SAME supplementation is cost prohibitive.
 - Trimethylglycine, TMG, 500 mg daily
 - Folic acid, 800 mcg daily
 - Vitamin B12, 500 mcg twice daily
6. Polyenylphosphatidylcholine (PPC) helps to detoxify and protect the liver while increasing the bioavailability of other nutrients. HepatoPro (formerly GastroPro) is a soy extract containing pure PPC. Two to four 900 mg capsules immediately before drinking is suggested.
7. Milk thistle extract has liver-protecting benefits. Silibinin Plus is a supplement that contains the most biologically active ingredients of silymarin along with other natural substances found in milk thistle. Take 250 mg twice daily for liver protection.
8. A probiotic formula will provide digestive enhancement of nutrients while protecting against the absorption of ingested toxins. Take 1 capsule of Life Flora daily. Nutra Flora powder, a fructo-oligosaccharide, will help keep intestinal flora healthy and may improve liver functioning. Take 1 tsp daily mixed with a beverage.
9. Magnesium supports arterial health and may help protect against neurovascular damage caused by consumption of alcohol, 500-1500 mg daily.

Note: Alcohol depletes many vitamins and minerals from the body, so taking high-potency vitamin-mineral supplements throughout the day is very important. For protecting and restoring liver function lost because of alcohol damage, refer to the Liver Cirrhosis protocol.

PRODUCT AVAILABILITY

The Anti-Alcohol Antioxidant formula, GastroPro, Kyolic Garlic Formula 105, S-adenosylmethionine (SAME), TMG, folic acid, vitamin B12, Silibinin Plus, Life Flora (probiotic), Nutra Flora, and magnesium can be obtained from the Life Extension Buyers' Club by calling (800) 544-4440 or by ordering online. The Foundation can also refer you to suppliers of offshore medications such as Picamilon and Pyritinol.

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