

THE PLAN C DATASHEET



ONLY THE BEST, AU NATURAL.

“Aging makes us more vulnerable to alcohol induced hangover. 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.” (11)



THE INGREDIENTS IN PLAN C WERE SPECIFICALLY CHOSEN FOR THEIR BENEFITS IN HANGOVER PREVENTION.

WHAT CAUSES A HANGOVER?

The alcohol pathway: from bottle to brain - what happens to the alcohol when we drink?

The obvious solution to hangover prevention, is to monitor consumption and reduce or avoid alcohol ingestion entirely. However, in a society where approximately 10% of the US population consumes an average of 73 drinks per week, symptom management may be the best option, as abstinence from alcohol in general does not seem to be the route taken in many instances. (see chart below).

The exact method by which alcohol exerts its effect is still intently studied, but we know that once it's been absorbed from the stomach, into the bloodstream, it then crosses the blood-brain barrier and moves into the nerve cells of the brain (1). Initially, this induces a pleasurable feeling and inhibitions begin to decrease. With greater alcohol consumption, the effects become less pleasurable, and lead to headaches, slurred speech, lack of coordination, memory "black out" periods and additional undesired side-effects. (1)

Alcohol use, and related problems, are influenced by each person's ability to break down alcohol, as well as the way it is broken down and eliminated from the body (2). This may have to do with genetics, environmental factors, age, race, and even gender. Although many of the effects of a hangover are due to alcohol itself, many are due to the toxic break-down product of alcohol, Acetaldehyde, which accumulates in the body. The more you drink, the more acetaldehyde accumulates.

No matter how much you actually drink, your body can only metabolize a certain amount of acetaldehyde every 2 hours, and factors such as race, gender, body mass and even liver size play a role here. That's why it's important to support the liver, and the detoxification pathways (which is where alcohol is broken down). This may decrease the accumulation of acetaldehyde, or assist liver function. Women tend not to have as many enzymes needed to break down that acetaldehyde, so it accumulates faster and its effects become greater.

Acetaldehyde is a toxin that can be quite harmful to the body and must be broken down even further so as not to cause any damage, eventually being eliminated in our urine. However, when we overconsume alcohol, our bodies become overwhelmed and can't effectively break down this chemical, causing it to accumulate and contributing many side-effects, such as increased pulse rates, sweating, flushing and even nausea and vomiting.

Other factors can play a role in that nasty hangover and stomach ache, such as alcohol sensitivities, alcohol impurities, and mixing of different alcohols.

ALCOHOL AFTER-EFFECTS

Liver Health:

Alcohol puts a large amount of stress on the liver, which can then be damaged by the by-products of alcohol, as well as by the inflammation caused by these by-products (5). Increased injury to

the liver can lead to many complications down the road, so it's important, if you're not abstaining from alcohol, to support the liver as best you can.

Plan C Solution: Nutrients such as Milk Thistle, to improve liver function (6), as well as antioxidants, such as resveratrol, to help manage some of the negative free-radicals by-products produced in the body.

Dehydration

Alcohol is a natural diuretic, and increases urine production causing further fluid elimination than normal. What do we get? Dizziness, light-headedness, thirst. (3)

Plan C Solution: A great source of electrolytes to try and help you stay hydrated and feverfew for the morning-after headache.

Inflammation & Stomach Lining Irritation:

Alcohol can actually trigger an immune response, causing your body to create inflammatory molecules. These lead to those wonderful feelings such as inability to concentrate, memory problems, and decreased appetite (3). It can also cause irritation of the stomach lining, promote inflammation, increases the production of stomach acid and delay the emptying of contents from your stomach. What does this mean? Nausea, abdominal pain and bloating (3).

Plan C Solution: Plan C aims to help manage the inflammation and the disruption in your immune system that occurs due to alcohol consumption, with ingredients such as glutamine (4) to help soothe and calm the inflammation, Marshmallow Root, to coat the lining of your digestive tract, to help bring down some of the irritation and acidity. We've also included botanicals, such as ginger, to help fight the nausea and vomiting

Vitamin Depletion

This irritation to the stomach lining can lead to difficulty absorbing nutrients and vitamins from the gut (7), especially vitamins B1, B3 and B6 (8).

Plan C Solution: Plan C includes a healthy dose of vitamins and minerals, such as B vitamin, Vitamin C, and magnesium, which are all depleted during alcohol consumption.

Dropping Blood Sugar

Alcohol can cause your blood sugar to drop (causing hypoglycaemia), making you feel shaky, weak and irritable the next day (3). The function of the liver is to release glucose (sugar) into the blood all day, and alcohol can actually inhibit this process, meaning less sugar released into the blood stream. The liver is working overtime to try and clear your body of acetaldehyde (that alcohol by-product), and then cannot keep blood sugar regulated as it needs to (3)

Plan C Solution: Plan C aims to stabilize blood sugar with the addition of nutrients, such as chromium (9) (10), to try and help

you avoid that shaky feeling later and that drastic drop in blood sugar.

Sleep Disruption

Although drinking can make you feel sleepy, it actually decreases the quality of your sleep, leaving you feeling tired the next morning (3). It's important to know, the less sleep you have, the worse you're going to feel.

Plan C Solution: Botanicals, such as Schisandra, may assist with helping you have a restful night of sleep.

INGREDIENTS

Milk Thistle Seed

Milk thistle is a botanical that has been used for centuries to support the liver, kidney and gallbladder, with many studies showing that it can protect the liver from damage due to toxin exposure (12). Milk thistle's active ingredient, Silymarin, is the constituent that may assist the liver in repairing itself, and has antioxidant and anti-inflammatory properties (12).

Milk Thistle supplementation has also shown benefit in seasonal allergies and symptom reduction; diabetes and decreasing blood sugar levels; heartburn; and even menopausal symptoms, including hot flashes and night sweats (13). It had been shown to improve liver health and enhance toxin excretion, specifically those related to alcohol (14), it has also been shown to inhibit the conversion of alcohol to acetaldehyde. Those who drink regularly can benefit from milk thistle supplementation, due to its protective effect on the liver (14).

Feverfew

Feverfew is a plant native to South-eastern Europe, and was used by ancient Greek physicians to treat inflammation and menstrual cramps (15). Despite its name, feverfew is not an effective treatment for fevers, but is used for the prevention of headaches and migraines (15). Feverfew in combination with ginger, another ingredient in Plan C, was also shown to be beneficial in the prevention of moderate to severe headaches (16).

Ginger Rhizome (zingiber officinale)

Ginger has been used for over 2000 years to treat digestive disturbances, such as diarrhea, stomach upset and more specifically nausea and vomiting (17).

In addition to its role in digestive health, it may also help to promote circulation, encourage healthy digestion, maintain and support joints, as well as promote a healthy response to environmental stress (18).

L-Glutamine

L-glutamine is one of the most abundant amino acids in the body, and it plays a big role in immune health, when glutamine stores are depleted, as well as in gut health. Generally, the body can make enough glutamine for its needs, but under stress and various other conditions, it may become depleted, and you might need more (19).

Alcohol causes something called glutamine rebound effect. Alcohol inhibits glutamine, a natural stimulant in the body.

When you stop drinking, your body tries to balance this out by causing a glutamine surge, which may result in sleep disruptions, so you may wake more often or sleep fitfully (20). With Plan C, we advise taking before and after a night out, to help manage this rebound effect, which may contribute to the fatigue, tremors, anxiety, restlessness, and even increased blood pressure that are often felt during a hangover.

Alcohol consumption is known to irritate the stomach lining, and glutamine may be of assistance here. It helps to protect the stomach lining (19).

Glutamine has also been used in inflammatory bowel disease, wound healing and recovery, to improve immune health for athletes post-event or post-training (19).

Marshmallow Root 4:1 extract (althea officinalis)

Marshmallow root is a demulcent, meaning it has a soothing effect on the lining of various systems, such as the digestive tract (21). It can actually coat the throat and stomach to reduce irritation, and helps soothe irritated membranes. It has been used, not only for ulcer, indigestion and inflammatory bowel conditions, but for asthma, bronchitis and coughs (22). It also contains large amounts of vitamin A, calcium, zinc, as well as iron, sodium, iodine, and B vitamins (23).

N-Acetyl Cysteine

NAC is a modified version of the amino acid cysteine, which acts as a precursor to the powerful antioxidant, glutathione, and helps restore the cells ability to fight damage from free radicals (24). NAC plays a role in enhancing the immune system, can balance blood sugar levels, and support livers health by preventing damage to liver cells (25). NAC may also protect against acetaldehyde toxicity by binding to acetaldehyde and preventing the damaging effects, and works even better in combination with vitamin C and B1 (14).

Resveratrol (polygonum cuspidatum root)

Most people are familiar with resveratrol, the antioxidant found in red wine, and have heard of the benefits of this compound. However, these benefits apply to moderate red wine consumption. The by-products of alcohol create massive free-radical damage to the cells, and this free-radical damage creates an effect similar to that caused by radiation poisoning (11). Low dose resveratrol has been shown to produce cellular protection and reduce damage from these by-products. Antioxidants consumed early evening or before an inebriated individual goes to bed, may prevent cellular damage and a hangover (11).

Vitamins & Minerals

Many vitamins and minerals are naturally depleted upon consumption of alcohol, therefore supplementing throughout the day is very important (25). Vitamin C, vitamin B1 and magnesium are among the key nutrients that help to neutralize those alcohol by-products and protect against the damaging effects of alcohol, so it's important to replete these key minerals and vitamins, that play a role as cofactors in many reactions in the body and are powerful antioxidants.

PLAN C INGREDIENT LIST

16 Capsules
NPN 8005 7855

Serving Size: 4 Capsules

Directions: *Adults take as outlined below or as directed by a health care practitioner.*

Moderate alcohol consumption: **2 capsules in the early evening and 2 capsules before bed**

Heavy alcohol consumption: **3-4 capsules in the early evening and 3-4 capsules before bed.**

Prolonged alcohol consumption: **2-4 capsules every 6 hours.**

4 capsules contain:

	Dose	Dose	
Thiamine (thiamine hydrochloride)/ <i>Thiamine (chlorhydrate de thiamine)</i>	50 mg		
Riboflavin riboflavin-5-phosphate/ <i>Riboflavine (riboflavine-5-phosphate)</i>	20 mg		
Vitamin B12 (hydroxocobalamin)/ <i>Vitamine B12 (hydroxocobalamine)</i>	500 mcg		
Niacinamide (niacinamide)/ <i>Niacinamide (niacinamide)</i>	20 mg		
Vitamin B6 (pyridoxine hydrochloride)/ <i>Vitamine B6 (chlorhydrate de pyridoxine)</i>	10 mg		
Folate (folic acid)/ <i>Folate (acide folique)</i> ...	200 mcg		
Biotin (biotin)/ <i>Biotine (biotine)</i>	200 mcg		
Pantothenic acid (calcium-d-pantothenate)/ <i>Acide pantothénique (d-pantothénate de calcium)</i>	10 mg		
Calcium (calcium citrate)/ <i>Calcium (citrate de calcium)</i>	15 mg		
Magnesium (magnesium bisglycinate)/ <i>Magnésium (bisglycinate de magnésium)</i>	4 mg		
Manganese (manganous gluconate)/ <i>Manganèse (gluconate de manganèse)</i>	2.5 mg		
Potassium (potassium chloride)/ <i>Potassium (chlorure de potassium)</i>	25 mg		
Chromium (chromic polynicotinate)/ <i>Chrome (polynicotinate de chrome)</i>	15 mcg		
Phosphorus (sodium phosphate monobasic)/ <i>Phosphore (phosphate de sodium monobasique)</i>	20 mg		
		Choline (choline bitartrate)/ <i>Choline (bitartrate de choline)</i>	40 mg
		Feverfew aerial parts (tanacetum parthenium)/ <i>Grande camomille, parties aériennes (Tanacetum parthenium)</i>	100 mg
		Ginger rhizome (zingiber officinale)/ <i>Gingembre, rhizome (Zingiber officinale)</i>	500 mg
		L-glutamine (L-glutamine) (L- glutamine)/ <i>L-glutamine (L-glutamine) (L-glutamine)</i>	600 mg
		Marshmallow root 4:1 extract (althaea officinalis)/ <i>Guimauve, extrait de racine à 4:1 (Althaea officinalis)</i>	400 mg*
		Milk thistle seed (silybum marianum)/ <i>Chardon-Marie, graine (Silybum marianum)</i>	50 mg
		N-Acetyl L-cysteine (synthetic) (L-alpha-Acetamido-beta-mercaptopropionic acid)/ <i>N-acétyl-L-cystéine (synthétique) (acide L-alpha-acétamido-bêta-mercaptopropionique)</i>	200 mg
		Resveratrol (polygonum cuspidatum root) (trans-resveratrol)/ <i>Resvératrol (Polygonum cuspidatum, racine) (trans-resvératrol)</i>	5 mg
		Schisandra fruit 4:1 extract (schisandra chinensis)/ <i>Schisandra, extrait de fruit à 4:1 (Schisandra chinensis)</i>	400 mg*

*Crude Herb Daily Equivalent/Équivalent quotidien en plante fraîche

Non-Medicinal Ingredients: phosphatidylcholine/*Ingrédients non médicinaux: phosphatidylcholine.*

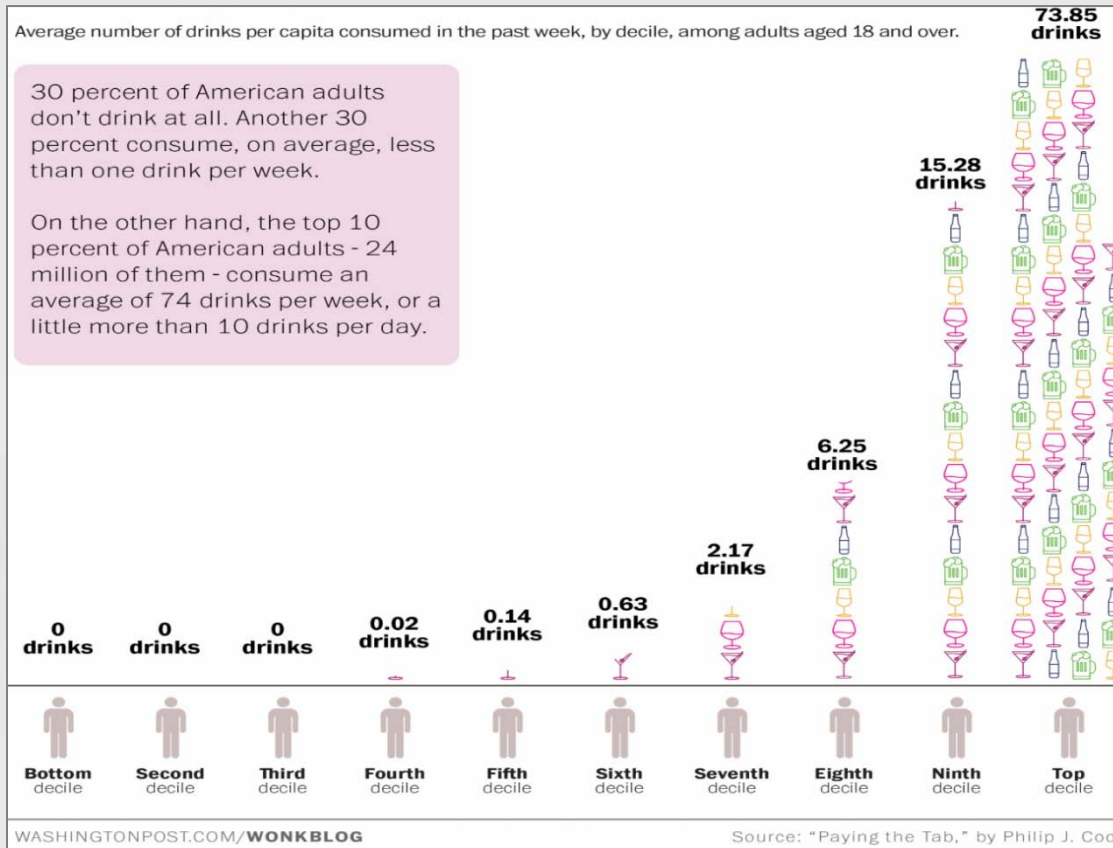
Contains no wheat, gluten, soy, dairy, artificial colors or flavors.

PAYING THE TAB: THE COSTS AND BENEFITS OF ALCOHOL CONTROL

Philip J. Cook

Summary:

- **30%** of American don't drink
- **30%** consume, on avg. less than 1 drink per week
- The top **10%** of Americans consume an average of **74** drinks per week, of a bit more than **10** drinks per day
- The rest of the population averaging between **2-15** drinks per week.



REFERENCES:

1. Hangover Headache. John Hopkins Medicine . [Online] http://www.hopkinsmedicine.org/neurology_neurosurgery/centers_clinics/headache/conditions/hangover_headache.html.
2. Alcohol Alert (U.S Department of Health & Human Services). National Institute on Alcohol Abuse and Alcoholism. [Online] 2007. <http://pubs.niaaa.nih.gov/publications/AA72/AA72.htm>. 72.
3. JACQUELYN J. MAHER, M.D. Exploring Alcohol's Effects on Liver Function. National Institute on Alcohol Abuse and Alcoholism . [Online] 1997. <http://pubs.niaaa.nih.gov/publications/arh21-1/05.pdf>.
4. Milk thistle (Silybum marianum). Mayo Clinic . [Online] 2013. <http://www.mayoclinic.org/drugs-supplements/milk-thistle/evidence/hrb-20059806>.
5. Staff, May Clinic. Hangovers. <http://www.mayoclinic.org/>. [Online] Dec 20, 2014. <http://www.mayoclinic.org/diseases-conditions/hangovers/basics/causes/con-20025464>.
6. Immunity, Inflammation, and Allergy in the Gut. Thomas T. MacDonald, Giovanni Monteleone. 5717 , s.l. : Science , 2005, Vol. 307 .
7. Effect of alcohol consumption on the gut. J Christian Bode, md (Em. Chief Department of Internal Medicine, Section Gastroenterology and Hepatology, Robert-Bosch Hospital, stuttgart, Germany/APL Professor of Medicine). 4, s.l. : Clinical Gastroenterology , 2003, Vol. 17.
8. B VITAMIN DEFICIENCY AND NEUROPSYCHIATRIC SYNDROMES IN ALCOHOL MISUSE. CHRISTOPHER C. H. COOK, PHILLIP M. HALLWOOD , ALLAN D. THOMSON. 4, s.l. : Oxford University Press, Alcohol and Alcoholism, Vol. 33, pp. 317-336.
9. Chromium, Glucose Intolerance and Diabetes. Richard A. Anderson PhD, FACNA*. 6, s.l. : Journal of the American College of Nutrition, 1998, Vol. 17.
10. Diabetes Mellitus Type 2 and Functional Foods of Plant Origin. Pathak, Manju. 2, s.l. : Bentham Science Publishers, 2014, Vol. 8.
11. Review affirms multiple benefits for resveratrol. Life Extension. [Online] June 12, 2009. <https://www.lef.org/newsletter/2009/6/review-affirms-multiple-benefits-for-resveratrol/page-01>.
12. Milk thistle. University of Maryland Medical Center (UMMC). [Online] 2011. <http://umm.edu/health/medical/altmed/herb/milk-thistle>.
13. Milk thistle. Medline Plus - National Institutes of Health. [Online] 2015. <http://www.nlm.nih.gov/medlineplus/druginfo/natural/138.html>.
14. Hangover Prevention. Life Extension. [Online] 2015. <https://www.lef.org/Protocols/Lifestyle-Longevity/Hangover-Prevention/Page-02>.
15. Feverfew. University of Maryland Medical Center (UMMC). [Online] 2013. <http://umm.edu/health/medical/altmed/herb/feverfew>.
16. A Double-Blind Placebo-Controlled Pilot Study of Sublingual Feverfew and Ginger (LipiGesticTMM) in the Treatment of Migraine. Roger K. Cady MD*, Jerome Goldstein MD, Robert Nett MD, Russell Mitchell, M.E. Beach BS, LPN, CCRP and Rebecca Browning BS. 7, s.l. : The Journal of Head and Face Pain, 2011, Vol. 51.
17. Ginger. University of Maryland Medical Center (UMMC). [Online] 2010. <http://umm.edu/health/medical/altmed/herb/ginger>.
18. Ginger 1:2. Standard Process . [Online] <https://www.standardprocess.com/Products/MediHerb/Ginger-12#VTgW2yFViko>.
19. Glutamine. University of Maryland Medical Center (UMMC). [Online] 2013. <https://umm.edu/health/medical/altmed/supplement/glutamine>.
20. Sleep, Sleepiness, and Alcohol Use. National Institute on Alcohol Abuse and Alcoholism. [Online] <http://pubs.niaaa.nih.gov/publications/arh25-2/101-109.htm>.
21. Bone, Kerry and Mills, Simon. The Essential Guide to Herbal Safety. s.l. : Elsevier, 2008.
22. Marshmallow. University of Maryland Medical Center (UMMC). [Online] 2013. <http://umm.edu/health/medical/altmed/herb/marshmallow>.
23. David R. Katerere, Dibungu Luseba. Ethnoveterinary Botanical Medicine: Herbal Medicines for Animal Health. 2010 .
24. Julius Goepp, MD. The Overlooked Compound That Saves Lives. Life Extension Magazine. [Online] May 2010. <http://www.lef.org/magazine/2010/5/n-acetyl-cysteine/Page-01?checked=1>.
25. Stokel, Kirk. The Liver Disease Epidemic You Need to Know About. Life Extension - Foundation for Longer Life . [Online] DEC 2010.
26. National Institute on Alcohol Abuse and Alcoholism . Women and Alcohol. [Online] AUG 2013. <http://pubs.niaaa.nih.gov/publications/womensfact/womensfact.htm>.