



STAPH Meal: Society To Always Procure Healthfully Newsletter

OFFICIAL NEWSLETTER OF DR. MIKE: AMERICA'S CULINARY INTERVENTIONALIST

IN THIS ISSUE: THE FALL CRUSH: RED WINE

Fall Harvest Issue



Food As Therapy: Red Wine and Health

Fall strides across the threshold of a new season with a veritable cornucopia of sensory delights. The air is refreshingly cool and pleasant with the loamy sent of impending arboreal slumber. The green monotony sheds its cocoon and emerges in a patchwork of brilliant yellows, reds, purples, and oranges. It is the historical time of year in which pastoral societies would gather the last of nature's bounty from the fields, and thin the ranks of the herds; both domestic and wild. Remnants and vestiges of such ritual can be found

today across the globe in various feasts, celebrations, and other activities. For many, it remains a religious experience in which water bottles are changed into wine glasses.

The fall grape harvest, or crush, heralds the season with all its augers, portents and promises. And chief among those is the promise of wine; which will be consumed within weeks in the case of Beaujolais nouveau or decades later for Bordeaux, Barolo, and Cabernet



Don't miss next week's Culinary CPR with Dr. Mike & Chef Luca!

Sauvignon. The enjoyment of such a naturally fermented elixir invariably raises the question; can something so good, possibly be good for us?

The data continues to accumulate that for any number of comestibles, wine included, that are composed of real, authentic, wholesome and natural ingredients the benefits extend beyond palate to person. Many studies suggest

there is a health benefit associated with the moderate consumption of any alcoholic beverage.



Join Dr. Mike and Bruce Cakebread from Cakebread Winery in Napa Valley on this week's Code Delicious!

(Continued on page 4. Also follow the link to [Psychology Today](#) to read additional commentaries)



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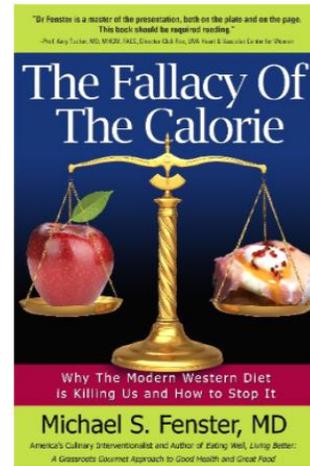
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HEALTHY BYTES BY THE NUMBERS

32%

The reduction in cardiovascular disease seen with consuming moderate amounts of wine

20%

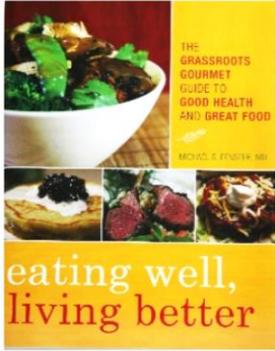
The reduction in the likelihood of developing Type II Diabetes associated with moderate wine consumption.

GRAND ROUNDS



Cheers!

Dr. Mike working on set-no repast complete without the vino!



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Dr. Mike's FAT (Food As

This week on *Code Delicious*: Bruce Cakebread and Dr. Mike chat on all things wine, health and Napa Valley!

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Therapy) initiative:

Is your food real, wholesome and authentic? Read on to learn the



health benefits of the ancient fruit of the vine!



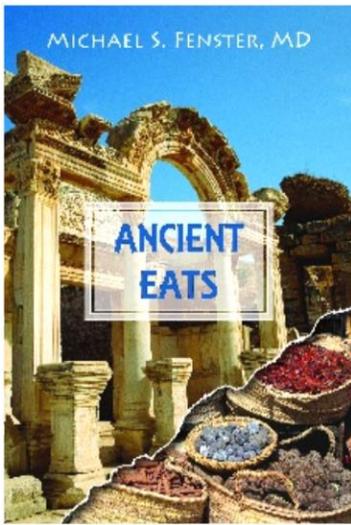
In vino veritas!

Two out of two doctors agree; in wine, truth! Dr. Mike with Dr. Manny on Fox News chatting up healthy diets.



October!

It is no coincidence that the crush and fall harvest fall in the month of October!



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Wine and Health Primer 101



Dr. Mike's Naturally Fermented Foods As Therapy (FAT)

The consumption of ethanol is associated with an increase in HDL cholesterol (good cholesterol), a decrease in platelet aggregation, and a reduction in overall systemic inflammation. However the consumption of red wine, which has been extensively studied, suggests that it confers significant additional health benefits; potentially due to its higher concentration of polyphenols. The remainder of this article will focus on red wine; although there is substantial evidence to suggest that white wines confer similar benefits, albeit to a lesser degree.

Here are ten potential health benefits associated with moderate red wine consumption.

1. *Cardiovascular disease*

The healthful benefits of moderate wine consumption have been shown in both epidemiological studies and clinical trials. Following an observation seen in many

physiologic phenomena, the relationship between wine consumption and cardiovascular risk follows a J-shaped pattern. The lowest risk is associated with moderate consumption, after which there exists a linear relationship between pathology and pints. In other words, consuming a small to moderate amount of wine on a regular basis reduces your risk compared to those who abstain. However, after certain point too much of anything can become detrimental. Wine is no exception. And saving up that glass or two a day for a binge on the weekend is never a good idea. Remember that night with tequila shots? Didn't think so. Case in point.

One recent meta-analysis found that regular wine consumption decreased the risk of developing cardiovascular disease by 32%. Atherosclerosis, the process by which blockages in the arteries occurs, is a low intensity, chronic inflammatory process that results in cardiovascular disease. This pathology accounts for the vast majority of strokes and heart attacks seen around the globe. The combination of ethanol and polyphenols found in red wine have been shown to reduce such markers of systemic inflammation as high-sensitivity C-reactive protein. Such benefit was seen in just 1 to 2 glasses of red wine per day for women, and slightly more for men. The variability between individuals is no doubt influenced not only by genetics, but to a large portion by the metabolism by the gut microbiome (more on that later).

The consumption of fish and seafood has also been strongly correlated to a reduction in cardiovascular morbidity and mortality. Predominant thought is that this is mediated by the beneficial effects of omega-3 polyunsaturated fatty acids (PUFAs) associated with the consumption of such foodstuffs. These predominantly involve the so-called marine omega-3 PUFAs; eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA). Although the exact mechanism remains unclear, moderate wine consumption is associated with an increase in EPA and DHA independent of other dietary constituents. With some omega-3 supplements costing over fifty dollars per month, a glass of red wine is not only more palate pleasing, but purse pleasing as well.

Other components of wine have been found to be acutely protective. In animal models of ischemic stroke, the most common kind, those that had received resveratrol suffered significantly less damage than those who had not. Resveratrol is an enriched bioactive polyphenol found in red wine. Researchers found that resveratrol selectively induces the enzyme heme-oxygenase 1 (HO1). The increased levels of this enzyme in the brain significantly reduced the neuron damaged suffered during an ischemic stroke.

2. *Stress and Aging*

Resveratrol also seems to be protective against stress throughout the entire body. Resveratrol appears to bind to a specific enzyme known as tyrosyl transfer-RNA (tRNA) synthetase or TyrRS. Under stress, the body activates this enzyme and it moves into the nucleus of the cell. There it acts to turn on a particular gene known as PARP-1. This specific gene is known as a survival gene because it plays a role not only in the body stress response, but in DNA repair and aging. In a Christmas light like fashion, turning on PARP-1 also activated a number of other protective genes like FOXO3A and SIRT6, which play a role in aging and longevity. The tumor suppressor gene p53 was also turned on. Based on the research, a few glasses of red wine provide enough resveratrol to flip on our protective survival genes.

At the same time, the components of red wine may crank down the aging process. According to medieval monks, the sacred nectar of *Vitis vinifera* confirmed longevity. Recent research from Harvard Medical School seem to confirm the good word. According to the senior author Dr., David Sinclair, “Resveratrol improves the health of mice on a high-fat diet and increases life span.” By activating the SIRT1 gene, resveratrol acts to induce mitochondrial biogenesis and protect against metabolic decline. The mitochondria are the engines that keep each cell running smoothly. Moderate red wine consumption may act like a cellular oil change.

It may also act to keep your fuel lines clean and open. Another family of polyphenols found in red wine, procyanidins, are vasoactive. They act to keep the blood vessels open ensuring reliable blood delivery to the organs and a healthy vascular system. They are also present at higher concentrations in wines from areas of southwestern France and Sardinia. These are areas, so called ‘Blue Zones,’ where people live not only longer, but healthier.

It also happens to be where traditional production methods ensure that these compounds are efficiently extracted during vinification. These old-style wines from the Nuoro region of Sardinia and the Gers region (in the Languedoc-Roussillon-Midi-Pyrénées region) of South-West France, contain about five times the procyanidins found in comparable wines from Spain, South America, Australia, and the US. This is accomplished by fermenting for three to four weeks versus the more modern method of a single week. Among the wines made this way, those from Cabernet Sauvignon and Nebbelio grapes had the highest concentration of procyanidins.

3. *Depression*

In addition to salvaging neurons and decreasing stress at the cellular level, moderate alcohol consumption might just keep them a little more chipper. While you should never attempt to drink your blues away, it seems that a glass or two of wine a day may prevent them from coming at all. Depression is the most prevalent mental illness worldwide. It is often associated with alcohol consumption. However, a recent European study examined over 5500 men and women at high risk to develop depression. None of the participants suffered from clinical depression at the initiation of the trial. Consumption of anywhere from roughly one-half to one glass of wine per day was associated with a 32% reduction in the risk for developing depression. However, significantly higher use was associated with an increased risk.

4. *Dementia prevention*

Paralleling the data seen with depression, moderate alcohol consumption seems to decrease the risk of dementia. However just as in depression, heavy consumption is associated with an increased risk.

A recent meta-analysis examined almost 150 previous studies. Compared with nondrinkers, those who engaged in moderate alcohol consumption had a 23% risk reduction in the likelihood of developing dementia or cognitive impairment. In a subgroup analysis examining the various types of alcohol (wine, beer and distilled spirits), wine afforded more neuroprotection than either beer or distilled spirits.

5. *Cancer prevention*

Moderate alcohol consumption has also been associated with the reduction in certain types of cancer; including colon, basal cell, ovarian, and prostate carcinoma. Moderate wine consumption may play a particular prominent role in tumors involving the gastrointestinal tract, as well. Consuming one glass of wine per day was associated with a decreased risk of developing Barrett’s esophagus; a precancerous condition which leads to esophageal adenocarcinoma. A similar consumptive pattern was also associated with an approximately 23% reduction in the likelihood of developing lung cancer.

Research performed at the University of Leicester in the United Kingdom and reported at the 2nd International Scientific Conference on Resveratrol and Health 2012 examined the potential impacts of moderate red wine consumption of the incidence of colon cancer. Using a

laboratory model, they suggested that approximately two glasses of red wine per day may reduce the rate of these gastrointestinal tumors by up to 50%.

A similar magnitude benefit was seen in prostate cancer. For men consuming one half to one glass of red wine per day, there was a 48% reduction in the likelihood of developing prostate cancer, compared to those who do not drink red wine. While the consumption of any type of wine, red or white, conferred benefit; red wine was most effective. For every additional glass of red wine per week, the risk of developing prostate cancer declined by 6%. Other forms of alcohol had no effect.

However, what is good for the gander is not always good for the goose. The data of the Million Women study suggested that even light to moderate levels of alcohol consumption may pose an increased risk of breast cancer. However, red wine contains compounds known as aromatase inhibitors (AIs). These act to prevent the conversion of androgens to estrogen. Aromatase inhibitors are drugs that inhibit aromatase, an enzyme which is involved in estrogen production. Aromatase inhibitors are used in breast cancer therapy. They occur naturally in red, but not white wine. This may be one reason why among the various alcoholic drinks, red wine does not appear to increase the risk of breast cancer.

Moderate wine consumption may also extend to those who have already suffered from certain types of cancers. A study looking at women with non-Hodgkin's lymphoma who consumed moderate amounts of alcohol found that those who imbibed had a significantly better five-year survival versus abstainers (75% versus 69%). Additionally, at five years more of the women who consumed wine were disease-free (70% versus 67%).

6. *Skin Health*

Sunshine on your shoulder may leave you happy, but it can also leave you with serious skin damage. Sunlight contains ultraviolet (UV) rays. When these interact with human skin cells an oxidative reaction can occur. Certain compounds known as reactive oxygen species (ROS) are formed. These can react with fats in the cells and even DNA to cause oxidative damage. Antioxidative polyphenols known as flavonoids are found in red wine. After ingestion, these compounds can rapidly accumulate in the serum. When they are present, particularly the family of polyphenols known as procyanidin oligomers and gallate esters, they can inhibit the formation of ROS in the skin cells that are exposed to sunlight and mitigate sun induced skin damage.

The unabated cumulative damage from sun exposure caused by such ROS, can lead to the formation of skin

cancers. A prospective study found that women consuming approximately one glass of red wine per day had a 22% lower risk of developing basal cell carcinoma; a particularly malignant form of skin cancer. Women consuming white wine or other forms of alcohol did not see any benefit.

7. *Lungs*

Like a breath of fresh air, the good news for women who love to consume white wine is that a recent European study of over 3000 people found that white wine improved lung function. White wine consumption results in a lower risk of airway obstruction. Airway obstruction is the mechanism by which those suffering from chronic obstructive pulmonary disease (COPD) experience their symptomatic shortness of breath (white wine consumption is not protective against COPD exacerbations). Polyphenols that are particularly plentiful in white wine, such as tyrosol and hydroxytyrosol, may be responsible.

The same study also found a significant benefit in terms of lung function for those consuming red wine. A different meta-analysis suggested a potential reduction of 23% in the likelihood of developing lung cancer for those consuming one glass of red wine per day. Author Dr. Chun Chao observed that, "An antioxidant component in red wine may be protective of lung cancer, particularly among smokers."

8. *Liver*

While excessive alcohol consumption of any type is unequivocally associated with the development of serious and potentially fatal liver disease, there is good news for moderate consumers. A recent study examined almost 12,000 participants who abstained from alcohol or consumed either 4 ounces of wine, 12 ounces beer, or 1 ounce of liquor per day. The regular consumption of moderate amounts of wine reduced the risk of nonalcoholic fatty liver disease (NAFLD) by approximately 50% compared to those who never drank wine. Those who consumed beer or spirits had twice the risk of developing NAFLD compared to that of the abstainers and four times the risk compared to moderate wine drinkers.

NAFLD is the most common liver disease in the United States, affecting over 40 million adults. Approximately 5% of those afflicted with NAFLD will go on to develop cirrhosis. The risk factors for the development of NAFLD are the same as those seen with many other disabilities and diseases associated with consumption of the modern Western diet. Many people who develop NAFLD also suffer from metabolic syndrome, diabetes, obesity, hypertension

and cardiovascular disease. Since moderate red wine consumption is associated with the reduction in many of these pathologies, a beneficial effect on this hepatic malady should not be unexpected. Yet the conventional wisdom that any alcohol consumption is bad for the liver goes to show that such an assumption is often neither conventional nor wise.

9. *Diabetes*

Among the pleiotropic effects of quaffing a delightful glass of red wine, are the beneficial effects in insulin sensitivity. Resveratrol which is found in red wine, has been shown to improve insulin sensitivity. Resistance to insulin is the hallmark of type II diabetes. Multiple studies have shown that moderate alcohol consumption is associated with a decreased risk for developing type II diabetes. In multiple meta-analyses, consumption of 2 to 3 glasses of wine per day is associated with an approximate 20% decrease in the risk of developing diabetes.

The Mediterranean diet, which is been shown to not only prevent some of the complications of diabetes, but is associated with a reduction in the incidence of its development; contains consumption of moderate amounts of wine as one of its dietary pillars. Recent studies have suggested that adherence to a Mediterranean approach can even result in the reversal of disease. The different components of the Mediterranean diet: ethanol consumption, low meat product consumption, high vegetable consumption, high fruit and nut consumption, high monounsaturated to saturated lipid ratio, high legume consumption, high cereal consumption, high fish and seafood consumption, and low dairy consumption were analyzed. The analysis revealed that the predominant healthful effect was due to moderate ethanol (primarily wine) consumption, being responsible for just under 25% of all benefit.

Wine associated health benefits extend as far as the eye can see; and in some cases further. Diabetic retinopathy can cause vision loss in almost 20% of people suffering with diabetes. Age-related macular degeneration is the leading cause of blindness among Americans aged 50 years and older. Both are caused by an abnormality of blood vessels in the eye. Murine experiments demonstrated a potent effect utilizing the resveratrol component found in red wine. Operating through the eukaryotic elongation factor-2 kinase, or eEF2, regulated pathway; resveratrol not only eliminated the abnormal vessels, but prevented new ones from forming.

10. *Gut Microbiome*

Like the seasons of wine, the story of health benefits comes full circle and ends where it began, with cardiovascular disease. Yet it also ends in a place most unexpected; the gut. The gut microbiome is that collection of bacteria that resides within us; outnumbering our cells by roughly 10 to 1. It is our collection of personal minions that assist us in the everyday tasks of processing the foods we consume. Research continues to reveal it playing an increasingly important role in health and wellness and the development of disease; particularly the disabilities and diseases of modern civilization.

Cardiovascular disease remains the leading cause of death in the United States and most other industrialized societies. It is estimated that 80-90% of Americans over the age of 30 suffer from some degree of atherosclerosis. Cutting edge science has demonstrated that the gut microbiome is intimately involved in the process of gut homeostasis. Depending on a complex set of variables, including genetics and what we eat; our gut microbiome can be a friendly Wal-Mart greeter or an angry soccer mob. Just like a fine wine; each of us has our own internal terroir. And nobody wants the crush harvested from Chernobyl.

It turns out that the unique microbial diversity within different regions around the globe, or appellations, affects the final chemical composition of individual wines. Wine is a living, natural fermented product. A bacterial product produced by the human gut microbiome, trimethylamine (TMA), can make its way to the liver where it is converted to Trimethylamine-N-oxide (TMAO). TMAO is associated with cardiovascular disease, systemic inflammation, diabetes and a host of other modern scourges.

The consumption of wine can favorably alter the human gut microbiome; as many naturally fermented foods appear to do. Murine studies have shown that the components found in wine can remodel the gut microbiota including increasing the Bacteroidetes-to-Firmicutes ratios, significantly inhibiting the growth of Prevotella, and increasing the relative abundance of Bacteroides, Lactobacillus, Bifidobacterium, and Akkermansia. In other words, a glass of wine just might turn that angry mob into choir boys.

Caveat Potior

There are several caveats which apply here. The first is to realize that the dose matters. With respect to wine consumption, it is about quantity and not averages. Many studies give the results in glasses per day or week.

However, the law of averages does not apply here. It is the turtle's pace of slow, reasonable, moderate consumption that yields benefit and enjoyment. Saving the drinks up during the week to binge over the weekend has been shown to be associated with zero health benefits and is in fact associated with the conditions linked to chronic, heavy alcohol abuse.

This article addresses red wine consumption in terms of moderation. This of course raises the question of exactly what amount that comprises. That, in truth, depends on many factors; weight, age, sex, body stature, other meal components and the like.

Women tend to absorb alcohol more rapidly than men because commonly they have a lower body water content and different levels of stomach enzymes. In general, their body weight also tends to be less. Therefore, moderate wine consumption may be lower for women than for men. In most studies, for women, moderate wine consumption ranged from one-half to two glasses of wine per day. A glass of wine generally being between four and five US ounces. For men the range was generally one to three glasses.

For those with a history of, or at serious risk for, alcohol abuse; any alcohol consumption should be avoided. For those looking for non-alcoholic sources of components like resveratrol, consumption of other naturally occurring comestibles can be found. These include grapes, blueberries, raspberries, bilberries, and peanuts.

Remember, wine is not a panacea for all of Pandora's ills. As the saying in medicine goes; the poison is in the dose. Excessive consumption and alcohol abuse can lead to depression, mental health problems, heart disease like cardiomyopathy and arrhythmias, stroke, hypertension, liver disease like fatty liver, alcoholic hepatitis, and cirrhosis, several types of cancers (particularly when combined with smoking), pancreatitis and many other chronic diseases.

With that being said, let your next glass of red wine, be literally; "To Your Health!"

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