



# THE IMPACT OF ALCOHOL ON HEALTH

CHAPTER TWENTY-TWO

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### LEARNING OBJECTIVES

After studying this chapter, the candidate should be able to:

- Recognize the potential negative consequences of excessive alcohol consumption.
- Discuss the potential health benefits of the moderate intake of alcohol.
- Recall what resveratrol is and how it impacts one's health.
- Understand how to achieve a healthy balance between the risks and benefits associated with alcohol consumption.

The appreciation and consumption of wine is on the rise in many countries around the world, presenting numerous opportunities for the wine professional. However, it also presents a unique set of challenges. Almost every aspect of the wine and spirits professional's job involves the ingestion of alcohol to some degree, including during training, sales, wine dinners, and trade tastings. Even when expectorating, some absorption of alcohol occurs.

The effects of alcohol can have dangerous consequences for both the professional and the consumer. However, there appear to be some health benefits associated with a moderate daily intake of alcohol. This chapter will examine the current research on the risks and potential benefits of alcohol consumption.

*Please note that nothing contained in this chapter or in the Study Guide as a whole constitutes medical advice. Such advice should only be obtained from a licensed medical professional.*

## HARMFUL EFFECTS OF ALCOHOL

Humans have been enjoying alcohol for thousands of years, and it is more widely available now than ever before. It is becoming prevalent in cultures with no prior history of alcohol consumption, and its use is increasing in many cultures that have a long tradition of imbibing.

Alcohol has properties that can act as a depressant, aid in relaxation, encourage social interaction, relieve feelings of anxiety, and enhance a meal. Studies demonstrate that restaurant visits accompanied by an alcoholic beverage are perceived to be more enjoyable and worthwhile experiences than those that are not.

When ethanol, the main chemical in alcoholic beverages, is absorbed into the bloodstream, it enters the brain, where it induces feelings of pleasure. A moderate intake of ethanol at the appropriate time may be pleasurable; however, some of the effects of ethanol, particularly at higher doses, may be unwanted and have serious consequences.

The dangers of the abusive consumption of alcohol are well-known and publicized:

- **Intoxication:** When alcohol is absorbed, it affects the brain's ability to further regulate its intake. This can lead to intoxication as the buildup of acetaldehyde in the bloodstream occurs. Acetaldehyde is a by-product of the metabolic process of ethanol in the liver and is more toxic than ethanol itself. When one becomes intoxicated, motor skills, speech, judgment, and the ability to drive become greatly impaired. In some cases, intoxication can lead a person to commit violent acts and exhibit socially inappropriate behavior.
- **Alcohol-Related Diseases:** Consumption of alcohol can increase the risk of serious diseases such as cirrhosis, a potentially fatal liver condition. Additionally, studies have shown that 100 ml of ethanol a day (equivalent to just over a bottle of wine) causes a condition known as fatty liver, in which fat accumulates within the cells of the liver. If alcohol consumption ceases, the

condition can be reversed. Cirrhosis, however, cannot be reversed and may result from continued alcohol abuse. Alcohol consumption may also increase the risk of developing many types of cancer, especially cancers of the mouth, esophagus, stomach, and breast. Other risks include stroke, high blood pressure, and heart attack.

- Alcohol Abuse: Individuals who abuse alcohol for extended periods of time often develop a tolerance. When this occurs, more and more alcohol is required to achieve past effects, and the likelihood of addiction greatly increases. Addiction can lead to severe problems with health, finances, relationships, and career. Prolonged, excessive drinking also contributes to several psychiatric conditions, such as depression.
- Binge Drinking: In developed countries, alcohol ranks third among risks to health and is the largest cause of premature death in people between the ages of 15 and 29. This is largely because young adults may “save up” their drinking for one big night out a week, a practice known as binge drinking. Binge drinking may result in a rapid rise of alcohol in the bloodstream and may also contribute to a host of alcohol-related incidents, such as motor vehicle accidents and fatal alcohol poisoning.

### BENEFITS OF MODERATE CONSUMPTION

There is strong evidence to support the claim that some degree of alcohol consumption may be beneficial to human health; however, there is no universally accepted “safe” level of consumption. The USDA recommends up to one drink per day for women and up to two drinks per day for men as a definition of *moderate* consumption. The definition of *one drink* is as follows:

- Wine (12%-14% abv) –5 ounces (148 ml)
- Beer (5% abv) –12 ounces (355 ml)
- Spirits (40% abv) –1.5 ounces (44 ml)

Studies have shown that the overall lowest mortality rates occur at this level of alcohol consumption, while the highest rates occur in

heavy drinkers. Moderate alcohol intake has been shown to reduce the risk of dementia and Alzheimer's disease, osteoporosis, certain types of cancer, and stroke. Extensive studies indicate that moderate drinkers tend to have lower mortality rates than those who abstain or drink very rarely.

Perhaps the most widely publicized potential benefit is the decreased risk of developing coronary heart disease, due to ethanol's reported clot- and plaque-reducing properties. However, this effect is only significant in people who are at risk of developing coronary heart disease.

Another important point to consider is that alcohol increases blood pressure, so a generalization cannot be made that a moderate amount of alcohol is beneficial for every individual. Furthermore, some individuals may be more prone to addictive behavior than others and should abstain from alcohol, as potential health risks far outweigh any possible benefits.

## RESVERATROL

Wine drinkers tend to be better protected against coronary heart disease, dementia, Alzheimer's disease, stroke, osteoporosis, peptic ulcers, and many types of cancers than those who drink beer or spirits. Many studies attribute this to resveratrol, a potent phenolic compound present in grape skins and seeds, and therefore often present in significant levels in red wine. There are many phenolic compounds present in wine that are responsible for color and tannin content, and they are all powerful antioxidants that help to protect cells from free-radical damage. However, it is resveratrol that has received the most attention for its anti-aging, disease-preventing, and cancer-fighting properties. It may even be an effective treatment in those with type 2 diabetes, helping the body to overcome insulin resistance.

When weighing the potential health benefits associated with alcohol consumption, it is important to remember that these benefits occur

only in certain doses and in certain individuals. There are many factors to consider, including gender, weight, medical history, and genetic makeup. More specifically, a healthy limit of alcohol for women is generally lower than that for men because women's bodies tend to metabolize ethanol more slowly. Additionally, some individuals are unable to tolerate even a moderate level of consumption due to the lack of a specific genetic enzyme needed to metabolize alcohol effectively.



Figure 22–1: Wine with food...in moderation!

### THE DECISION TO IMBIBE

The decision to imbibe, and how much, should depend on one's specific situation. It would, of course, be ill-advised to consume alcohol to protect from one disease while putting oneself at greater risk for another. For example, alcohol has been shown to increase the risk of breast cancer in women. The risk may be lessened if the alcohol is red wine, consumed at a moderate level (1 to 1.5 glasses per day); however, at higher levels of consumption, this effect is nullified.

The greatest benefits of alcohol consumption to health have been shown to occur when alcohol is consumed with meals, preferably at the same time each day, and not in excess of the recommended servings. Consuming alcohol with food slows down its absorption, which is healthier for the liver, kidneys, heart, and nervous system.