



ALCOHOL AND HEALTH

THE EFFECTS OF MODERATE, REGULAR ALCOHOL CONSUMPTION



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INTRODUCTION

When Éduc'alcool published its first monograph on alcohol and health, we noted that the data would have to be updated at some point in the future. That time is now.

However, there are other reasons why we have published this new version of *The Effects of Moderate, Regular Alcohol Consumption*.

Our research continues to show that, when it comes to alcohol, Quebecers are most interested in its effect on health.

What's more, the connection between drinking and health is in the news more than ever. Month after month, new data are reported and commented on in the media. The topic is far from exhausted.

Finally, Éduc'alcool's mission is to educate, inform and increase public awareness about drinking. The alcohol-health connection thus falls squarely within our scope.

This report is by no means the final word on the subject. Research continues to be done, and we cannot presume to have a monopoly on some ultimate truth. We will no doubt be publishing yet another update several years from now.

Great care must be taken when publishing such data, because, after all, **each individual is unique**. We have therefore included a few important highlights that are relevant to the general relationship between drinkers and alcohol. While not part of the current study, these points always bear repeating.

The conclusions of this monograph may be qualified, but they remain clear: for most women after menopause and most men over the age of 40, moderate, regular drinking generally produces some health benefits.

In other words, moderation is always in good taste.



HIGHLIGHTS

Each individual is unique

The effects of alcohol on health vary from one person to the next, and generalizations should be avoided. What is good for most people is not necessarily good for everyone. It is important to have correct information and, above all, to know yourself well.

The beneficial effects of alcohol

Scientific research shows that for most North Americans and Europeans, moderate, regular drinking, i.e. one or two drinks a day, can provide some protection against cardiovascular disease, peripheral vascular disease, type 2 diabetes and gallstones. It can also have a positive impact on a person's psychosocial condition, and reduce the risk of rheumatism, arthritis and kidney stones.

Age is a factor

Studies indicate that alcohol has no protective effect on young people. The protective effect increases with age and the risk of disease. For men, that means after the age of 40; for women, as of menopause. The most significant protective effect is seen in people 60 and older.

Sex makes a difference

On average, women weigh less than men, and lower body weight translates into higher blood alcohol content. Also, kilogram for kilogram, women have less water in their bodies than men do. Consequently, if a man and a woman who weigh the same drink the same amount of alcohol, the woman's blood alcohol content will be higher. Finally, women digest alcohol differently than men because they have fewer alcohol-metabolizing enzymes. In addition, hormonal differences between the sexes explain why, even if they drink exactly the same amount, the health impacts for men and women will not be the same.

Regularity is the key

The beneficial effects of alcohol are seen only in people who drink regularly, which means drinking about the same amount every day. There is a world of difference between having two drinks a day over seven days, and having seven drinks a day over two days.



Moderation is important

A drink or two every day may be good for you, but doubling your intake does not double the health benefits. When beneficial effects are noted they occur only when people drink moderately, and when drinking is spread over several days of the week.

The findings apply to all alcoholic beverages

The benefits of alcohol may vary from one type of drink to another. Red wine, in particular, may have protective qualities that other alcoholic beverages do not. However, the effects we are talking about here apply to alcohol of all kinds, including wine, cider, beer and spirits.

Drinking with food is better

People appear to derive the greatest health benefits from alcohol if the drinking takes place around mealtime. For example, a pre-dinner cocktail or glass of wine with a meal is not equivalent to drinking on an empty stomach in the morning.

A drink is a drink

There is as much alcohol in one 340 ml (12 oz) glass of beer or cider (5% alcohol by volume) as there is in one 140 ml (5 oz) glass of wine (12% alcohol) or one 45 ml (1.5-oz) glass of spirits (40% alcohol). These are all considered standard servings, except for cider, which is usually served in a 140 ml glass.

There's more to it than drinking

If you want to be healthy and reduce the risk of disease, you have to do more than just limit your drinking to two alcoholic beverages a day. Eating well, not smoking, and exercising regularly are also important in reducing your risk factor.

You don't have to drink

For a variety of reasons, some people choose not to drink alcohol at all, and nobody is going to recommend that they start for medical reasons. After all, people drink alcohol for pleasure and by personal choice, not as medication.



ALCOHOL AND HEALTH

This *Éduc'alcool* publication is intended to take a current scientific look—i.e. of the research since the year 2000—on the benefits of moderate, regular alcohol consumption (MRAC). For the last 20 years or so, considerable research has been showing that **alcohol may protect against certain diseases, particularly cardiovascular disease.**

Nonetheless, drinking may also increase the probability of developing various other diseases, specifically certain forms of cancer, cirrhosis of the liver and neuropsychological disorders. What do we mean by moderate, regular alcohol consumption? What are the health benefits? And what are the potential risks?

MRAC may well have a beneficial impact on health, but it is just one factor among many. For example, the positive effects of MRAC cannot compensate for the harmful effects of smoking, poor nutrition, obesity or low socioeconomic status. The decision to drink or not to drink will always be a personal choice that reflects cultural values, religious beliefs, and individual preferences and traits.

Moderate, regular alcohol consumption (MRAC)

Alcohol can have very different effects on different people, which makes it difficult to pinpoint exactly how much constitutes moderate drinking. Nevertheless, it is important to know exactly what “a drink” is, in order to truly understand the specific risks associated with a given amount of alcohol. A standard drink is defined as follows:

1 glass of beer	340 ml	12 oz	5% alcohol
1 glass of wine	140 ml	5 oz	12% alcohol
1 glass of spirits	45 ml	1.5 oz	40% alcohol
1 glass of fortified wine	85 ml	3 oz	18% alcohol

Anyone who wants to monitor exactly how much they are drinking should keep in mind that the current trend in the wine industry is to increase the alcohol content of certain wines. It is therefore a good idea to check the label and know the alcohol percentage, so that the number of drinks can be adjusted accordingly. It's also good to remember that many people who drink spirits tend to pour themselves more than the standard amount in each drink.¹

Teenagers should delay the start of drinking as long as possible. If and when they do have a first drink, ideally it should be under parental supervision, and they should have less than an adult would have. Seniors should also drink less than people under 65. Some people should abstain from drinking altogether, or else drink less than the general population. These include people with specific

health problems, people taking medication, people with a personal or family history of alcohol dependence, pregnant women and those trying to conceive, etc. It is also recommended that heavy drinkers reduce their intake of alcohol. And under no circumstances are abstainers advised to begin drinking in order to improve their health!

Drinking habits make the difference

Drinking habits are a key factor determining the impact of alcohol on health. Having two drinks a day will affect your health and your life very differently than if you down 10 drinks on a Saturday night, then drink nothing for the rest of the week. Moderate, regular and responsible alcohol consumption keeps you from getting drunk and requires that you limit the amount you drink on each occasion as well as how much you drink over the course of an average week.

Practical Tips

- Set limits for yourself and stick to them.
- Drink slowly—no more than 2 drinks every 3 hours.
- Alternate alcoholic and non-alcoholic beverages.
- Eat before you drink and while drinking.
- Plan to drink in a safe environment.
- Know your local laws about drinking.

¹ Gill, 2004; Lemmens, 1994.



THE HEALTH BENEFITS OF MRAC

Cardiovascular disease

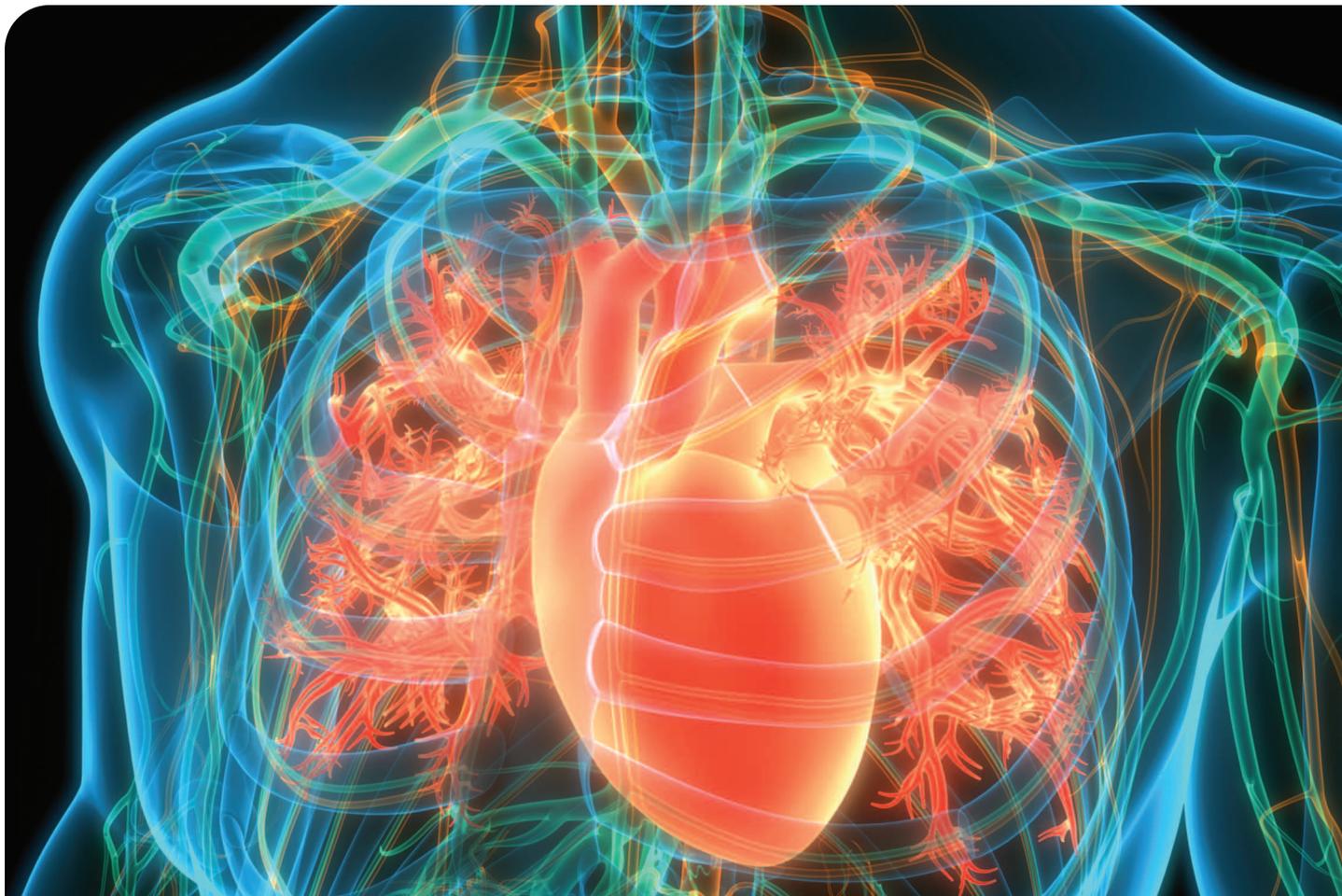
Not counting other risk factors, such as smoking, physical activity, eating habits and obesity, MRAC is associated with a reduced risk of several cardiovascular diseases. One or two drinks a day reduces the risk by at least 30%; more than that and the beneficial effect disappears. Thus far, the protective effect of alcohol has been observed in men over the age of 40 and in women as of menopause. The beneficial impact is most notable in people over the age of 60.

The protective effect may come primarily from the fact that, over the long term, MRAC increases the level of high-density lipoproteins (HDL, or “good” cholesterol) in the blood. HDL helps clear low-density lipoproteins (LDL, or “bad” cholesterol) from arterial walls to prevent buildup and blockages. In the short term, alcohol also appears to inhibit the formation of blood clots, thus maintaining good blood circulation.

All kinds of alcohol are associated with the reduced risk of cardiovascular disease. While some researchers note that wine may have somewhat more of a protective effect than other alcoholic beverages, results are not yet absolutely conclusive.

Among people who have experienced an episode of heart failure over the age of 65, MRAC might even extend their lives. In such cases, moderate drinkers lived a little more than a year longer than long-time abstainers. Maximum benefit was observed among those who had 10 drinks a week.

Since alcohol seems to protect against some cardiovascular diseases, it may also protect against other diseases, such as strokes and peripheral vascular disease, which are caused by atherosclerosis (the build-up of plaque, which is an accumulation of cholesterol and calcium, in the inner lining of the arteries).





Strokes

It is very difficult to define the specific link between MRAC and strokes. Since alcohol raises HDL (the “good” cholesterol), one might expect that MRAC would reduce the risk of ischemic strokes, which are those caused by blood clots or blockages in the arteries of the brain. Conversely, the same effect that alcohol has on inhibiting the formation of blood clots may increase the risk of hemorrhagic strokes, which are those caused by the rupture of an artery in the brain, due to an aneurism or sclerosis of the brain. In short, the information about the relationship between alcohol and strokes is inconclusive.

Peripheral vascular disease

Peripheral vascular disease occurs when blood circulation in the arms and legs is compromised due to a narrowing of the blood vessels, which leads to a loss of sensation and muscle weakness. Since the pathology is similar to that seen in strokes, i.e. the presence of atherosclerosis, it is suspected that the protective effect of alcohol would be similar.

Diabetes

Moderate drinkers are about 30% less likely than non-drinkers to develop type 2 diabetes, which generally appears after age 45 and occurs when, for various reasons, the body does not properly use the insulin it continues to produce. The beneficial effect of alcohol is seen mainly in women, and seems due to the fact that alcohol helps the body moderate glucose levels in the blood.

Dementia

At one drink a day, alcohol appears to be associated with a reduced risk of dementia, including Alzheimer's disease. The effect is more notable among people under the age of 60.

Gallstones

A number of studies show that MRAC is associated with a reduced risk of gallstones. As it turns out, the way that alcohol affects bile production and “good” cholesterol (HDL) helps prevent the formation of gallstones.

Psychosocial effects

Research confirms the common knowledge that alcohol has some beneficial effects on psychosocial condition. MRAC promotes relaxation, reduces stress, improves mood and sociability. It can also have a positive impact on social cohesion, creativity and leisure time. These psychosocial benefits, like all others attributed to alcohol, may vary from one culture to another and depend on the amount of alcohol consumed.

Other beneficial effects

Other beneficial effects are suggested by the research. For example, alcohol may reduce the risk of rheumatism and rheumatoid arthritis in women, as well as osteoarthritis, kidney stones, infections and even the common cold.

However, the impact of MRAC on cognitive abilities, such as memory, reasoning and thinking, remains largely unexplored.

RISKS ASSOCIATED WITH MRAC: CONTROVERSY

While there is no doubt that alcohol abuse is harmful to one's health, the potential risks of MRAC are less well known and sometimes controversial. Aside from the increased risk of injury and accident (after only one or two drinks, in some cases), the most frequently noted diseases are breast cancer, colorectal cancer and cirrhosis of the liver.

Some studies show a link between alcohol and breast cancer among both pre-menopausal and post-menopausal women. However, with regard to both risks and benefits, while connections have been observed, no causal relationship has been established between MRAC and breast cancer.

Similarly, while some research has shown a connection between drinking and the risk of developing colorectal cancer, that risk could be negligible among light drinkers who have about one drink a day.

As for liver disease, the amount of alcohol at which the risk increases depends on the research study and the disease involved, e.g. hepatic steatosis, alcoholic hepatitis, cirrhosis, etc. Because the liver is the only visceral organ able to regenerate itself, periods of abstinence are important to allow it to repair some of the damage caused by drinking. Damage from cirrhosis is often irreparable.

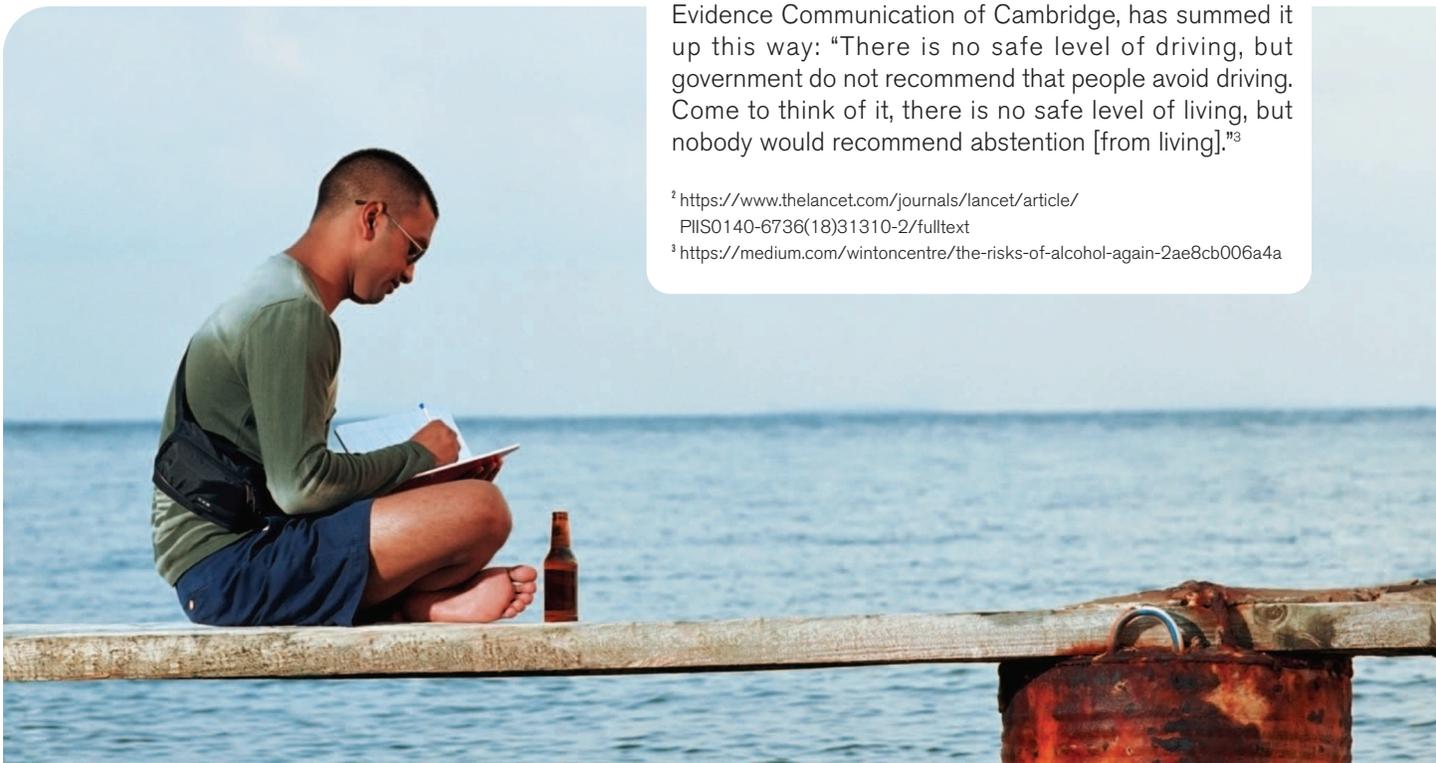
In 2018, two large-scale studies may have sown some doubt about the potential benefits of MRAC. The larger one² compiled data from almost every country in the world and suggests abstaining from alcohol completely. The argument is based primarily on the fact that just one drink a day is enough to increase the risk of contracting a number of alcohol-related diseases. According to both studies, the harmful effects of drinking outweigh any benefits of moderate drinking. However, such conclusions bear qualifying.

For example, the increased risk observed between zero and two drinks a day is low, if not negligible. Moving up from abstinence to one drink a day, the risk of developing one of the 23 diseases studied increases by 0.5% over a given year. In real numbers, among non-drinkers, 914 in every 100,000 people would develop one of the diseases. Having one drink a day increases the number to 918, or four more per 100,000. Increasing alcohol consumption from zero to two drinks a day results in an increase of 7%, or 63 people, for a total of 977.

Considering that one drink a day decreases the risk of cardiovascular disease by 30%, it is worth thinking twice before giving up that drink if the purpose is to avoid a 0.5% chance of contracting one of 23 diseases. Sir David Spiegelhalter, chairman of the Winton Centre for Risk and Evidence Communication of Cambridge, has summed it up this way: "There is no safe level of driving, but government do not recommend that people avoid driving. Come to think of it, there is no safe level of living, but nobody would recommend abstention [from living]."³

² [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(18\)31310-2/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(18)31310-2/fulltext)

³ <https://medium.com/wintoncentre/the-risks-of-alcohol-again-2ae8cb006a4a>



INDIVIDUAL VULNERABILITY

The effects generally reported regarding the impact of drinking on health apply to the general public. However, as the research shows with increasing clarity, when it comes to alcohol, we are not all born equal. The effects of alcohol can vary greatly from one person to the next, and genetic heritage, weight and age are among the important factors we must each consider when figuring out what it means to drink moderately.

Genetics

Some genes – located in specific areas of the chromosomes – play an important role in determining how much alcohol it takes for a person to feel drunk. Recent studies show that as much as 50% of the risk of alcohol dependence is determined by genetic factors.⁴

Slow response to alcohol. People who need a large quantity of alcohol in order to feel the effects are at greater risk of developing a dependence. Men and women who tend not to feel drunk should therefore pay closer attention and refrain from unlimited drinking.

Quick response to alcohol. Some people have to be careful for the opposite reason. These are the drinkers who feel drunk and lose control over their bodies sooner than the average person.⁵

It is not uncommon for such people to have a family member with a serious drinking problem.

Like those who are slow to respond to alcohol, people who are quick to respond must be more careful than the average drinker, in order to avoid social gaffes and accidents.

⁴ Edenberg and Foroud, 2006; Grucza and Bierut, 2006; Schuckit, 2005.

⁵ Duranceaux et al., 2006.

Weight

The health impacts of alcohol reported in terms of number of drinks are based on men and women of average height and weight. But we know that blood alcohol content is basically the amount of alcohol absorbed divided by the amount of water present in the body. Thus, the less water there is in the body, the higher the blood alcohol content will be. People whose weight is below average and those with a high percentage of body fat must therefore be particularly careful.

Low body weight. People of below-average weight also have a lower-than-average water content in their body. As a result, all other things being equal, lighter people will have a higher concentration of alcohol in their blood. If this sounds like you, be careful.

High body fat. The same warning applies if your body fat percentage is higher than average body fat. Given two people who weight the same, where one is well muscled and the other is overweight, the one with the high body fat will feel the effects of alcohol more than the one with all the muscle, because fatty tissue does not contain much water.



CIRCUMSTANTIAL VULNERABILITY

Age

Young adults. Teens who wish to drink should do so carefully and remember that the reported health benefits do not apply to them.

In fact, teenagers can't handle alcohol as well as adults. They often weigh less and have less water in their bodies to dilute the alcohol.

Also, compared to adults, young people have fewer of the enzymes that help the liver eliminate alcohol.

What's more, the adolescent brain is more vulnerable to damage by alcohol. Recent studies in neuroscience and child psychiatry show that the brain is not really fully developed until after the age of 20. Teens are therefore at greater risk when they drink because alcohol inhibits the development of some parts of the brain.

Older people. As people age, their kidneys, liver, cardiovascular system and brain undergo changes. Some of these changes make the elimination of alcohol less efficient, while others make people more sensitive to the effects of alcohol.

Older people tend to have a higher body fat percentage than younger adults and less water in their bodies. An older person will therefore have a higher blood alcohol content than a younger person who drinks the same amount.

Also, because of their increased physiological vulnerability and the fact that many of them take prescription drugs (see Medication), some seniors should drink less than the general population.

Medication

People on medication should be extra cautious and check with their doctor or pharmacist to see whether alcohol is contraindicated.

When taken in combination with certain medications, like those prescribed for epilepsy, high blood pressure and the common cold, alcohol can cause dizziness and drowsiness.

More seriously, mixing alcohol with medication for rheumatism, arthritis, pain, infection and depression can cause significant physical and psychological problems.

Finally, alcohol can increase the sedative effect of benzodiazepines and other drugs, increasing the danger of falling.

Hunger, fatigue and stress

When you are very hungry, tired or stressed, you should drink less than you normally drink, so as to avoid the negative effects of excessive drinking.

When you feel hungry, that means your stomach is empty, so any alcohol you drink will be absorbed by the blood much more quickly. Consequently, you will feel the effects of the alcohol sooner and more intensely.

The same warning applies when you are very tired. Fatigue is a sign that your energy supplies are low, which means your liver will not eliminate alcohol as efficiently. The blood alcohol content of a tired person will be higher than that of a well-rested person who drinks the same amount. Many symptoms of fatigue are similar to those of intoxication, and drinking will simply make them worse.

And since alcohol is a depressant, its negative effects will be felt more intensely by people who are stressed or depressed.



⁶ Crews et al, 2007.

⁷ Wesson, 1992.

⁸ Herring, 1995.



CONCLUSION

The effects of MRAC on health vary from one person to the next. At this time, it is not possible—and it will likely never be possible—to make recommendations that apply to all people.

Since alcohol provides protection essentially against cardiovascular diseases, which are very rare among young adults, no positive impact on mortality has been observed in this group. MRAC may protect them later against this type of disease, but this remains to be shown.

The beneficial effects of alcohol on health can be observed at low levels of consumption and among certain groups of people. In the case of a number of diseases, while some studies are encouraging, more research is necessary in order to confirm the positive impact of alcohol.

Among post-menopausal women and men over 40, MRAC is associated with reduced mortality due to the potential protective effects of alcohol on fatty deposits in the blood

vessels. One recent study shows that four factors—when combined—were associated with a reduced risk of mortality among people 70 to 90 years old:

- following a Mediterranean diet
- engaging in physical activity
- abstaining from smoking
- drinking moderately

Despite the potential positive impact of MRAC on health, no one should feel compelled to drink. As for abusive drinking, its harmful impact on health and safety are well known, not to mention the way it can endanger the safety of others.

Whatever the circumstances, moderation is always in good taste.

IN THE SAME COLLECTION

The reports in Éduc'alcool's *Alcohol and Health* series are well researched and easy to read. Each one gets straight to the point and is a valuable health, education and information resource. All of them may be downloaded from educalcool.qc.ca or ordered by calling 1-888-ALCOOL1.



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An explanation of what happens to alcohol as it passes through the body and the effects it produces.



THE EFFECTS OF EARLY ALCOHOL USE

Examines the harmful effects of early alcohol use and explains the basic reasons why young people should not have unrestricted access to alcohol.



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A description of the effects of alcohol on people 65 and older. Includes valuable advice for seniors, their families, friends and caregivers.



ALCOHOL AND MENTAL HEALTH

Explains the connections and interactions between mental health disorders and problem drinking and provides useful information and advice.



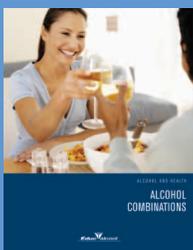
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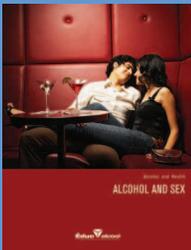
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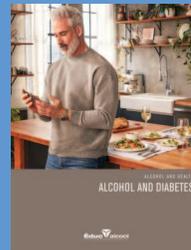
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A publication covering the impact of drinking habits on the development of Alzheimer's disease and other neurocognitive disorders.



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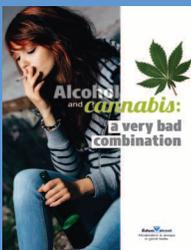
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ALCOHOL AND HEART HEALTH

A report on the effects of moderate drinking on cardiovascular health. Benefits are explained and myths are debunked.



Moderation is always in good taste.

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