EM0208: The Globe and Mail, February 12, 2002, page R5

Better off red?

In moderation, alcohol can be good for your heart, but what about red wine's anticancer claims? **ANDRÉ PICARD** uncorks the truth about the wine's alleged full-bodied benefits

Louise Larouche loves a fine wine. She can take up to an hour breathing in the ever-changing bouquet before taking a sip, and spends countless hours studying vintages.

"For me, every glass of wine is a journey, a discovery. It's pure pleasure", she said.

As president of the Disciples of Bacchus, an exclusive Quebec City wine-lovers' club, she can indulge herself, and her hobby, in rarefied company.

But Ms. Larouche says the intellectual stimulation she gets from wine drinking is matched by the physical benefits.

Years ago, she had dangerously high levels of cholesterol in her blood. From her reading, she knew that drinking wine was good for the heart.

Ms. Larouche started drinking two glasses of wine daily. Her low-density lipoproteins (LDL), the bad cholesterol, fell. Her high-density lipoproteins (HDL), the good cholesterol, rose.

"I'm the living proof that wine is good for you", Ms. Larouche said.

That alcohol, consumed in moderation, is good for the heart is no longer in dispute.

Whether it comes from beer, wine or spirits, alcohol raises HDL. It is also an anticoagulant. That means that a drinker's arteries are less likely to clog, and a drinker's blood less likely to create clots, the principal causes of heart attacks and strokes.

But wine, and red wine in particular, is accorded all sorts of other attributes, many of which are in dispute.

Wine is said to delay the onset of Alzheimer's, prevent ulcers, provide some protection from cancer and even extend lifespan.

But all these touted benefits come from research that demonstrates associations, not cause and effect. As a result, the experts are cautious about their recommendations.

"We're careful to not advocate drinking, because the evidence isn't there to do so", said Andreas Wielgosz, a spokesman for the Heart and Stroke Foundation of Canada.

"But, if you do drink, do so in moderation and it certainly won't do any harm."

Not exactly a ringing endorsement. But, in recent years, wine consumption has increased dramatically, at least in part due to health claims.

Dr. Wielgosz, who is also a professor of medicine and community health at the University of Ottawa, said that, personally, he will drink the occasional glass of wine, but certainly not on a daily basis.

What he does do religiously is eat five to 10 servings of fruits and vegetables a day, and exercise regularly.

"Eating a diet rich in fresh fruits and vegetables is the most universal message we have. The evidence is much stronger than for wine", Dr. Wielgosz said.

But there is no doubt that, given a choice between a lovely cabernet sauvignon and an extra helping of broccoli, many people will opt for the former.

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The enthusiasm for wine as a heart-healthy drink has its roots in the so-called French paradox. Years ago, Dr. Serge Renaud of the Paris-based research institute INSERM, published eye-popping research showing that, despite similar fat intake, the rate of heart attacks in France was about one-third of what it was in the U.S. To explain the difference, he identified, as a key factor, the French custom of drinking wine with meals.

Subsequently, however, other researchers noted that a more significant distinction may be the fact that the so-called Mediterranean diet favoured by the French features many more fresh fruits and vegetables, more dark fish (rich in omega-3), and more olive oil than the typical North American diet.

The leisurely pace at which they dine is also indicative of a far less stressful lifestyle, a major contributor to heart disease.

Still, much of the debate about the health benefits of wine have been at the biochemical level. There are a number of elements in wine that have garnered scientific attention.

One is polyphenols, which are found largely in the skin of red grapes. Researchers have found that the more polyphenols in a drink – and red wine has the most – the lower the level of endothelin-1 in the blood. Endothelin-1 is a substance that causes arteries to constrict and, when too much is produced by the body, it can cause arteries to clog up and harden.

Polyphenols also have an anti-oxidant effect. (There are, in the body, free radicals, oxygen atoms that damage cells; anti-oxidants, like vitamin E, prevent that cell damage.)

This has led some to claim that wine has an anti-aging quality. There is even a popular line of French beauty products that are made with wine.

The evidence that wine extends lifespan, however, comes from a Danish study. Researchers there followed 13,000 people for more than 12 years, and found that moderate drinkers were half as likely to die as non-drinkers. That research, however, looked at alcohol consumption, and did not single out wine as particularly beneficial.

Another important element in wine is bioflavonoids, which also have anti-oxidant qualities. Bioflavonoids are found in grapes, but in even more significant quantities in berries, particularly strawberries.

"There's much less risk in over-consuming strawberries than wine", Dr. Wielgosz noted wryly.

Quercitin is yet another compound in red wine that has been singled out. It helps dilate blood vessels, and prevent blood clots.

But the element that has garnered the most attention is probably resveratrol.

Red grapes produce resveratrol to protect themselves from fungus, but there is evidence that it can provide some protection against cancer. In laboratory experiments, it has inhibited the development of cancer in animals.

In people, the most compelling evidence that wine protects against cancer comes from the Harvard Nurses Study. In that long-term research, women who drank moderately (1½ drinks a day) had a lower incidence of cancer overall, and of breast cancer in particular.

Resveratrol is also an anti-oxidant, and helps decrease the stickiness of blood that can cause clotting. In animal studies, it has been shown to inhibit inflammation, which also contributes to heart disease.

Dr. Haydn Pritchard, a biochemist and professor of pathology at the University of

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British Columbia, said, despite the vast number of claims about the benefits of wine, a "cautious approach is necessary because the evidence really isn't that strong."

An expert in lipids, he said the evidence that moderate alcohol consumption improves HDL is good. Still, he noted that moderate exercise also boosts HDL as much, if not more, than a stiff drink.

But Dr. Pritchard, who likes the occasional beer, said "there is no substantive evidence that there is something special about red wine."

"This is not, as some people would have us believe, Drano for the veins."

He said that, in recent years, knowledge about anti-oxidants has improved greatly, and the "anti-oxidant story is falling apart." For example, it is now becoming clear that consuming vitamin E in tablets confers virtually no anti-oxidant benefit, that those effects come from consuming fruits and vegetables, not just by deriving some compounds.

Dr. Pritchard said that if all the benefits attributed to wine were true, then grape juice and dealcoholized wines would be equally effective. But numerous studies have demonstrated that the improvements in heart health come only to drinkers of real wine, showing it is the alcohol that is the key ingredient.

This can also be demonstrated with an extreme example. Severe alcoholics rarely get heart disease. They also tend to have fabulous cholesterol readings: Their HDL are very high, and LDL very low. And because they often suffer from malnutrition, they have very little clotting, meaning their risk of stroke is almost non-existent.

Another huge point of contention is whether the benefits attributed to wine are due to the drink itself, or to the lifestyle of wine drinkers.

"But alcoholism is a dangerous place to go," Dr. Pritchard notes, because alcohol, consumed in excess, destroys the liver, killing more efficiently than heart disease. Excess alcohol can also harm the heart's pumping function.

Alcohol is also laden with calories. A glass of wine, a beer or a shot of liquor all contain between 100-150 calories. When a person consumes alcohol frequently, they tend to build up abdominal fat (a so-called beer belly) that is quite dangerous for the heart. Alcohol can also block the body's ability to burn fat.

Alcohol can also be dangerous to people with pre-existing heart conditions. Those who suffer from hypertension (high blood pressure) should be very careful, as should patients who have suffered heart failure. Alcohol also interacts with medication, and should not be taken with most drugs.

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It is well-established that, for a variety of reasons, people with higher incomes have better health outcomes, including less heart disease. It is also clear that there is a preponderance of wine drinkers in these higher income groups.

Even if the more-well-to-do prefer wine, the evidence is that a $10 bottle of wine has as much health benefit as the pricey bottle of Lalande de Pommerol that Ms. Larouche prefers.

But even she, a wine aficionado, believes that the real benefit of wine may be esoteric, that it may come from the relaxed, stress-free atmosphere that a good meal with wine can create.

"There's nothing worse than sharing a $350 bottle of wine in unpleasant company," Ms. Larouche said. "On the other hand, sharing a $10 bottle of wine with good friends is delightful, and wonderful for the heart."

The article EM0208 reprinted overleaf and above is used in Chapter 11 of the STAT 231 Course Materials and in Statistical Highlight #42, together with articles EM0303, EM9810 and EM0210.

Investigating the health effects of red wine consumption is also discussed in the article EM9411: *The attack on red wine's hearty reputation*.