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Life is a J-shaped curve

By Harvey E. Finkel, M.D.

About 25 years ago, I was going through something of an epiphany regarding wine's influences upon health. At the time there were two committed camps in the US. A sizable number insisted that anything containing alcohol was intrinsically evil, prohibitionists denying that any good could ever come from drinking, however moderate. (Despite ever-mounting evidence to the contrary, few have moved off their spot.) A smaller group of Panglossians hopefully saw panacea in wine, having concluded that the vine somehow extracted from the earth salubrious essences to be transmitted via its fermented fruit to the consumer. They would pontificate on what they deemed should be the state of the world. Until this period, sound evidence for either view did not exist. To my double professional embarrassment, some physicians were adherents of each of these cults.

I had remained agnostic, not much engaged. I liked wine, and it seemed obvious to me that a moderate quantity was fine, enhancing meals and conviviality, and that excess was harmful. Wine as a health enhancer had not entered my mind. Even now, I use wine to enrich life, not to medicate it. True, there was a long history of folk wisdom and some sage opinions that wine was healthful, but Hippocrates had it right in his *Law*, book IV: "There are in fact two things, science and opinion; the former begets knowledge, the latter ignorance." Even so, one should not be totally dismissive of the thoughts and observations of one's forebears, for they may be helpful guides. In fact, it appears that medical science is only now catching up.

Let's take a quick peek back through the ages at a selection of thoughts on how wine might affect health. The psalmist might have been prescient about wine's cardiac benefits when writing, "...wine that maketh glad the heart of man" (Psalms 104:15). In the Talmud is inscribed, "Wine is the foremost of all medicines; wherever wine is lacking, medicines become necessary." A Russian proverb advises, "Drink a glass of wine after your soup, and you steal a ruble from the doctor." Matthiolus was more comprehensive about wine:

"an excellent nutriment to refresh the body, it makes a good colour, a flourishing age, helps concoction,

fortifies the stomach, takes away obstructions, provokes urine, drives out excrements, procures sleep, clears the blood, expels wind and coldpoisons, attenuates, concocts, dissipates all thick vapours, and fuliginous humours."

Louis Pasteur, one of the greatest of medical scientists, considered, "Wine is the most healthful and hygienic of beverages." Even Winston Churchill reported that claret, drunk in British army messes in India, was held to be "a sovereign preventative against the prevalent cholera." (Wine was later found effective in preventing several other gastrointestinal infections.)

On the other side, neoprohibitionists continue to cite alcohol horror stories, but these are rarely related to wine and are always due to wretched excess. The only potentially harmful component of wine is alcohol, that only when it is consumed in excess. This has been recognised for millennia. (Alarms about sulfites, lead, pesticides, and urethane were tempests in a wine glass. Criminal adulterations with antifreeze and methanol in Austria and Italy, respectively, uncovered in 1985 were isolated episodes.)

Wine is a two-edged sword. Hippocrates wrote, "Wine is wonderfully suited to human nature, assuming that it is used in appropriate doses in both sickness and health, and in accordance with a person's individual constitution." This remains true today. Echoed Saint Chrysostom, "Wine...is the best medicine when it has moderation to direct it." Andrew Boorde, of *Physycke Doctor*, wrote in his *Dyetary of Helth*, "wine...moderately drunken it doth quicken a man's wits, it doth comfort the heart..." "Whether wine is a poison, a medicine or a nourishment is a matter of dosage," said the bombastic Paracelsus, who could have been similarly characterised. Shakespeare, wisest of us all, spoke on the matter in *Othello*, the Moor of Venice, II,iii:

"Every inordinate cup is unblessed and the ingredient is a devil...good wine is a good familiar creature, if it be well used: exclaim no more against it."

And good, familiar Abraham Lincoln explained, "It has long been recognised that the problems with alcohol relate not to the use of a bad thing, but to the abuse of a good thing."

Acknowledging the dichotomy, some may be carried away. Recognising that the liver is the first to go from excess, but that the heart is a gainer, Shakespeare wrote in *The Merchant of Venice*, I,i: "And let my liver rather heat with wine/ than my heart cool with mortifying groans." H. P. Lovecraft sang, "Better under the table than under the ground!"

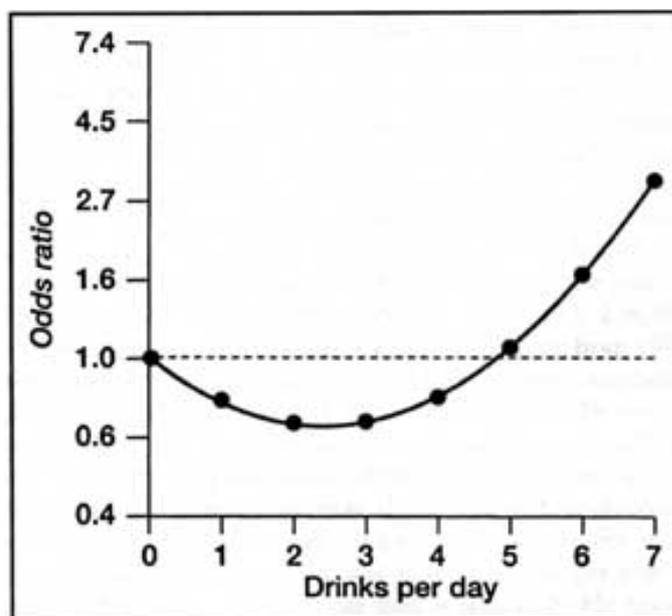
Some advised specific wines for particular ills. Traditional Chinese, for example, prescribed lizard wine (with the creature immersed) for the kidneys and lungs. I used to believe that Dr. Salvatore Lucia, a medical professor, was foolishly uncritical in his wine-specific medical advice, but when I dipped into his *Wine and Your Well-Being* (Popular Library, 1971) a few days ago I was amazed at how much smarter he had become.

Data derived by the scientific method in support of wine's healthfulness reached a critical mass in the 1980s, and has grown almost exponentially since. It was then I became convinced that wine afforded us more than pleasure, that the ill-substantiated folk wisdom was right after all. (My professional embarrassment thereupon tripled as some physicians professed to continued ignorance. Often unable or unwilling to give valid answers to their patients' questions, they would err invariably on the side of abstinence, because of ignorance, of bias, of fear their patients might drink too much, or because of fear of lawsuits.) The essence of reasonable conclusions is illustrated graphically by the now-familiar J-shaped curve, which expresses that abstinence is an adverse health risk, that moderate drinking enhances health and lengthens life, and that excessive drinking is most dangerous to health and life. I often think that life is a J-shaped curve. One's favourite potable potion portion should be limited to allotments the body can handle, two or three glasses per day for men, one or so for non-pregnant women. Binge drinking is devilishly destructive. The mass communicative power of television brought this to wide attention when *60 Minutes* aired its segment on the famous "French paradox" in November, 1991. Behold corpulent, indolent middle-aged Frenchmen, Gauloises ever dangling, sated on Normandy butter, foie gras, and Camembert and shunning vegetables, suffering fewer heart attacks than lean, exercising, nonsmoking Americans. The difference, it was concluded, was the Frenchmen's daily dose of vin rouge.

Wine's favourable factors are complex and incompletely resolved. Alcohol itself, thought to contribute at least

half of the health benefits, lends wine body, flavour, preservation, enlivening, and propulsion of bouquet. It extracts some of the polyphenols during fermentation. It stimulates the liver to produce HDL cholesterol (the "good cholesterol") and inhibits excessive blood clotting. The polyphenolic antioxidants, including resveratrol, possibly inhibit activation of LDL ("bad") cholesterol, clotting, inflammation, infections, diabetes, blood-vessel stiffening, and might help with cancer, obesity, blood pressure, dental caries, and mental function, especially in the elderly. They stimulate nitric oxide production, vital in arterial walls, and may increase omega-3 fatty acids. Both alcohol and the polyphenols may favourably influence other lipids. Procyanidins suppress endothelin-1, a factor "crucial in the development of coronary atherosclerosis." Tyrosols, found in white wine, assuage the injury of a heart attack.

Cardiovascular disease, especially heart attack and stroke, is certainly reduced among moderate drinkers. Also of interest are cancer, diabetes, dementia, degenerative diseases, and aging. Resveratrol appears to lengthen life span for yeast, roundworm, fruitfly, fish, and mouse. Future research opportunities are enormous. Shall we volunteer?



A typical U-shaped or J-shaped curve of relative risk for adverse health effects for alcohol or wine consumers compared with nondrinkers. Nondrinkers are assigned a risk of 1, and drinkers are plotted according to level of consumption. The relative risk equals number of events (eg, myocardial infarction) among drinkers divided by number of events among nondrinkers. Note that the relative risk of adverse health events for drinkers is lower than that for nondrinkers when consumption is between 1 and 4 drinks per day, whereas consumption exceeding 4 drinks results in an increased risk above that of nondrinkers.