

Volume 1, No. 1 • Spring 2004

WINE & HEALTH

The Nation's Only Magazine Investigating the Health Benefits of Wine

Can Red Wine Prolong Your Life?

Harvard Study Reveals Tantalizing Possibilities

Small Organic Label Vanquishes All Comers

A \$15 Merlot is Better for You Than a \$225 Premiere Cru

All Carbs Are Not Created Equal

And Wine Carbs Are Better Than Most

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it's not on the label

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Final Health Score

| Wine | Score |
|---|-------|
| Badger Mountain Organic Merlot 2000 | 96 |
| Dominus Napa Valley 1999 | 93 |
| Grand Vin De Chateau Latour 1999 | 93 |
| Errazuriz Don Maximiano 1999 | 92 |
| Chateau Haut-Brion 1999 | 92 |
| Antinori Tignanello 1998 | 91 |
| Primus Veramonte Carmenere Merlot Cabernet Sauvignon 2000 | 91 |
| Opus One Red Wine 1999 | 90 |
| Montes Alpha Cabernet 2000 | 89 |
| Mouton Rothschild Pauillac 1999 | 89 |
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| Chateau Margaux 1999 | 87 |
| Chateau Lafite Rothschild 1999 | 86 |
| Black Swan Vineyards Merlot 2002 | 84 |
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| Rubicon Niebaum-Coppola 1999 | 82 |
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| Black Swan Vineyards Chardonnay 2002 | 70 |
| Bonterra Chardonnay 2001 | 70 |
| Yellow Tail Chardonnay 2002 | 69 |
| Charles Shaw Chardonnay 2002 | 67 |
| Corbett Canyon Chardonnay 2002 | 66 |

Health Score Index

95-100: Excellent

90-94: Outstanding

85-89: Good

80-84: Acceptable

75-79: Below Average

74 and below: Unacceptable

Wine & Health lab tests labels for the major components that people either want in their table wines, or want to avoid. Our findings reveal the complex interplay of trade-offs between desirable and undesirable components. This Health Score Index assigns each label a composite score, where the potentially undesirable contents of a wine are weighed against its desirable ones. Thus the wines at the top of the Final Health Scores table (above) are not necessarily the highest scorers in every category, but are those that have the best *overall* standings. Readers most interested in a particular component—say sulfite or polyphenol levels—are invited to refer to the stand-alone rankings for that component, which are broken out in the individual tables at the back of the magazine. Where two components are strongly related—for example carbohydrates and alcohol content—tables are shown side by side.

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Contributing Artists

Susan R. MacKenzie—mother, farmer, psychotherapist, environmental consultant, photographer—has two photos in this inaugural issue. One is the graceful tendrils screened on this page. The other is the luscious grapes seen on page 11. She can be reached at SRMackenz@aol.com.

Ann Renzy, when not traveling with her camera, is teaching classics to high school students in her native Virginia. In addition to Latin and Greek, she loves the Italian language. Her shots from a recent trip to Italy include one of her uncle, featured on the back cover, and the wine press shown on page 14.

Dan H. Williams, is an artist from Leesburg, Virginia whose marvelously detailed trellis with grape clusters watercolor, on page 13, was created in a vineyard in the Virginia wine country. His art is inspired by a sense of wonderment at the natural world and our interaction with it. He also specializes in pastel portraits. He can be reached at 703-771-4977.

Wine & Health offers a general educational discussion of the health effects of wine and wine components. It is not health advice and should not be construed as such. You should never rely solely upon the information given here. Your particular circumstances may well require an entirely different approach. You should not make any changes in your medications, diet, activity, lifestyle, etc. without first consulting a licensed physician.

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From the Editor

The body of research on the health benefits of wine is large and growing. People around the globe have been looking at wine and wine elements for years and now there is a considerable amount of evidence from various disciplines showing that many wines have elements good in thwarting heart diseases and some forms of cancer. Some are also implicated in forestalling a host of other ailments, from osteoporosis to Alzheimer's to some of the damaging effects of a single cigarette.

And of course one of the biggest wine and health stories to emerge recently is the prospect that a compound frequently found in red wine can actually prolong human life—a possibility that has Harvard researchers wondering whether it works at such a fundamental physiological level that it could help prevent an amazing range of diseases and disorders.

There is one thing you will never find, however, in the studies. That is: exactly which wines have what benefits? At *Wine & Health* we decided to find out, so we started choosing wines and putting them through lab analysis, using one of the same commercial labs the federal government uses for food testing. We pick the wines we test according to the risks or benefits elsewhere associated with them. Then we compare specific categories. Is it true, for example, that all Chilean reds are high in polyphenols—those important antioxidant compounds? Are all organic wines free of sulfites, a preservative which some never notice while others accuse it of giving them headaches or allergic reactions? Are the more expensive wines generally healthier than the cheaper ones?

In order to answer these questions in a useful way, two things are necessary. First, you must know what to look for. Second, you must look. There is much talk of the health benefits of wine these days, but what good does it do you if you can't put that knowledge to use? We tell you what's in your wine, we tell you why it matters—in plain language—and we tell you who is saying it, so you can go farther on your own if you want to.

We promise it will be an enlightening journey.

Walter R. Devine
Editor & Publisher



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Alcohol Disclaimer: The ill effects of alcohol abuse are well known. Damages to the central and peripheral nervous system, the liver, the pancreas, the gastrointestinal tract, the heart, skeletal muscle and the bones are well documented in medical text books. The risks of malignancies in organs such as the stomach and breasts are also known to increase with heavy consumption. On top of all these the death rate associated with alcohol-related car accidents has always been a major governmental concern. The American Heart Association (AHA) says the health benefits of alcohol are limited to one to two drinks a day. The US Department of Agriculture (USDA) defines moderation as no more than one drink per day for women and no more than two drinks per day for men. The following count as a drink: 12 ounces of regular beer; or 5 ounces of wine; or 1.5 ounces of 80-proof distilled spirits or; 1 ounce of 100-proof distilled spirits.

the good stuff comes from

W ashington

One of the things that makes the search for healthy wine so exciting is that you never know which ones are going to appear at the top of the list when the results come back from the lab. From the 30 wines analyzed in this edition—which includes some of the best in the world and a few decidedly run-of-the-mill ones—there emerged a winner that scored a 96 out of a possible 100 points for health value, the highest we have awarded to date. It was an organic wine from Washington state whose name may be new to many.

The *Badger Mountain Certified Organic Merlot 2000* we tested scored higher than wines at 15 times the price. It bested some of the most well respected American and French labels. It may come as a surprise to see an organic wine doing so well on the scale of elements we test for, because even though the term "organic" may be associat-

and that means they abstain from using commercial fertilizers, herbicides, and pesticides, or any man-made chemicals in the vineyard itself. "There are naturally occurring products that we can use to control insects and mildew that are approved by the USDA for use in organic farming. The key to putting out an organic wine is how we manage our vineyard and from there, once it becomes wine it's pretty much standard winemaking, except we do not use sulfites."

Badger Mountain started out making wine with organically grown grapes that contained sulfites. Eventually they launched a no-sulfites-added line, which has become their driving force, Powers said. There is more to organic wines than a lack of sulfites. At Badger Mountain they use all-natural methods for controlling insects, fungus and weeds. There is no co-mingling of organic and conventional ingredients and no exposure to federally prohibited materials during handling. The farms and processors are inspected annually by an independent certification agency. For insect control they use predatory insects (that eat the bad bugs) and apply natural soap compounds and other all natural materials, instead of pesticides. They use an in-row cultivator (hoe plowing) to control weeds in the grape rows and to mow the grass in the center. This replaces the use of herbicides. All grape skins and seeds are composted and returned to the vineyards. Cover crops of vetch and rye are grown between the vine rows for nitrogen and humus. Additionally, all-natural blood meal and fish meal are added as needed for nitrogen and other trace elements.

Wine columnists report that they receive more questions on sulfites from their readers than on any other single ingredient. An unscientific survey of our readers tells us that confusion about sulfites abounds generally among members of the wine-drinking public. Sulfites is a term comprising six different compounds of sulfur dioxide, which in these various forms have been used since at least pre-Roman, and probably Egyptian times, as a preservative and stabilizer of wine. It basically stops the oxidation that can brown the wine.

The sulfite content in food came to the fore in the U.S. in the late 80's, amidst the salad bar boom. Restaurateurs took to spraying liberal amounts of sulfites on the greens in order to keep them fresh. This led to a number of cases of negative reactions, including a small number of deaths due to anaphylactic shock, principally among asthmatics. According to the Food and Drug Administration (FDA), only a small number of people—about 2.9 million, or one percent of the U.S. population—is liable to have some level of sulfite sensitivity. In 1988, responding to these negative reactions, the federal government decreed that all packaged food containing more than 10 parts per million (ppm) sulfites must bear on its label the phrase "contains sulfites." They chose 10

ed in the public's mind with a generally healthier approach to growing, it doesn't necessarily mean that an organic wine will be healthier overall than a non-organic one. Indeed, another wine that is made with organic grapes scored considerably lower in overall health value. What it does mean is that a small vineyard tucked away in the southwest corner of the Washington state is producing some exceptionally healthy wine. "As organic growers, part of our thought process is we're trying to put the best possible product in people's hands, to put out a product that is as good for a person as it can be," said Greg Powers, winemaker at Badger Mountain. "And hopefully you're putting something into your body that is grown right."

Under new federal guidelines for organic products, wine can only be called "organic" if it contains no less than 95 percent organic ingredients, contains no added sulfites, and is so certified by a federally approved agent. [See related graph "Wine-Buyer's Guide to the New Organic Labeling."] The organic process starts in the vineyard, Powers said,



“ We’re trying to put the best possible product in people’s hands. And hopefully you’re putting something into your body that is grown right. ”

Greg Powers, Winemaker
Badger Mountain Vineyard

ppm because that was the lowest reliably detectable amount in foods. Wines were no exception to the rule and now bear the warning. Contrary to popular belief, the rule applies to all wine sold in the U.S., domestic and imported, and winemakers are pretty good about complying with the regulations, though there are sporadic exceptions.

Badger Mountain Certified Organic Merlot tested below 8 ppm for sulfites, along with *Frey Zinfandel*. Frey Vineyards, in Mendocino County, CA, is the oldest (1980) and largest purely organic winery in the United States and makes its wines with no added sulfites.

Less than 8 ppm in wine is very low, because some sulfites are naturally occurring in wine. This is another area of confusion for wine buyers. There are two ways sulfites can enter wine, either naturally in the fermentation process, or artificially when the vintner adds them in production. Wines with very high sulfite levels are said to give off a burnt match aroma.

Not all wines with the word “organic” on the label are free from sulfites. While wines like Badger Mountain are in the official category of “Organic,” other wines labeled “Made With Organic Grapes” may have higher amounts of sulfites.

The organically grown grapes used for both the Bonterras were not enough to eliminate sulfites. In fact, quite a few non-organic wines actually had fewer sulfites than the *Bonterra Chardonnay 2001* and the *Bonterra Cabernet 1999*. At 113 ppm sulfites, it had more than twice the sulfites of the both the *Charles Shaw Cabernet* and *Merlot*. Nor did Bonterra’s organically grown grapes show any higher levels of polyphenols than similarly priced Cabernets from California.

If you are going to try an organic wine, remember the down side to low-sulfite wines: they are sensitive to oxygen. The vineyard goes to great lengths in production to keep the wine from oxidizing. They size their batches to their tanks, to decrease the possibility of air in the fermenting tanks. They also insert a layer of gas over the yield, to better seal it off from oxygen. What this means to the buyer is don’t lay them down, or let them hang around too long. “Once they are open, they are meant to be drunk,” Powers said. “This is not a wine that you want to sit open and let breathe for a while.” Badger Mountain keeps a close eye on their sales to make sure they don’t have wines on the shelf for more than 14 months.

Wine-Buyers Guide to the New Organic Labeling

Label Claim: “100 Percent Organic”

Organic Content: Must contain 100% organically produced ingredients, not counting added water and salt.

Label Claim: “Organic” or “X percent organic” or “X percent organic ingredients.”

Organic Content: Must contain at least 95% organic ingredients, not counting added water and salt. **Must not contain added sulfites.** May contain up to 5% of nonorganically produced agricultural ingredients which are not commercially available in organic form, and/or other substances allowed by legislation.

Label Claim: “Made with Organic Ingredients” or “X percent organic” or “X percent organic ingredients.”

Organic Content: Must contain at least 70% organic ingredients, not counting added water and salt. Must not contain added sulfites; except that **wine may contain added sulfur dioxide.** May contain up to 30% of nonorganically produced agriculture ingredients and/or other substances, including yeast, allowed by legislation.

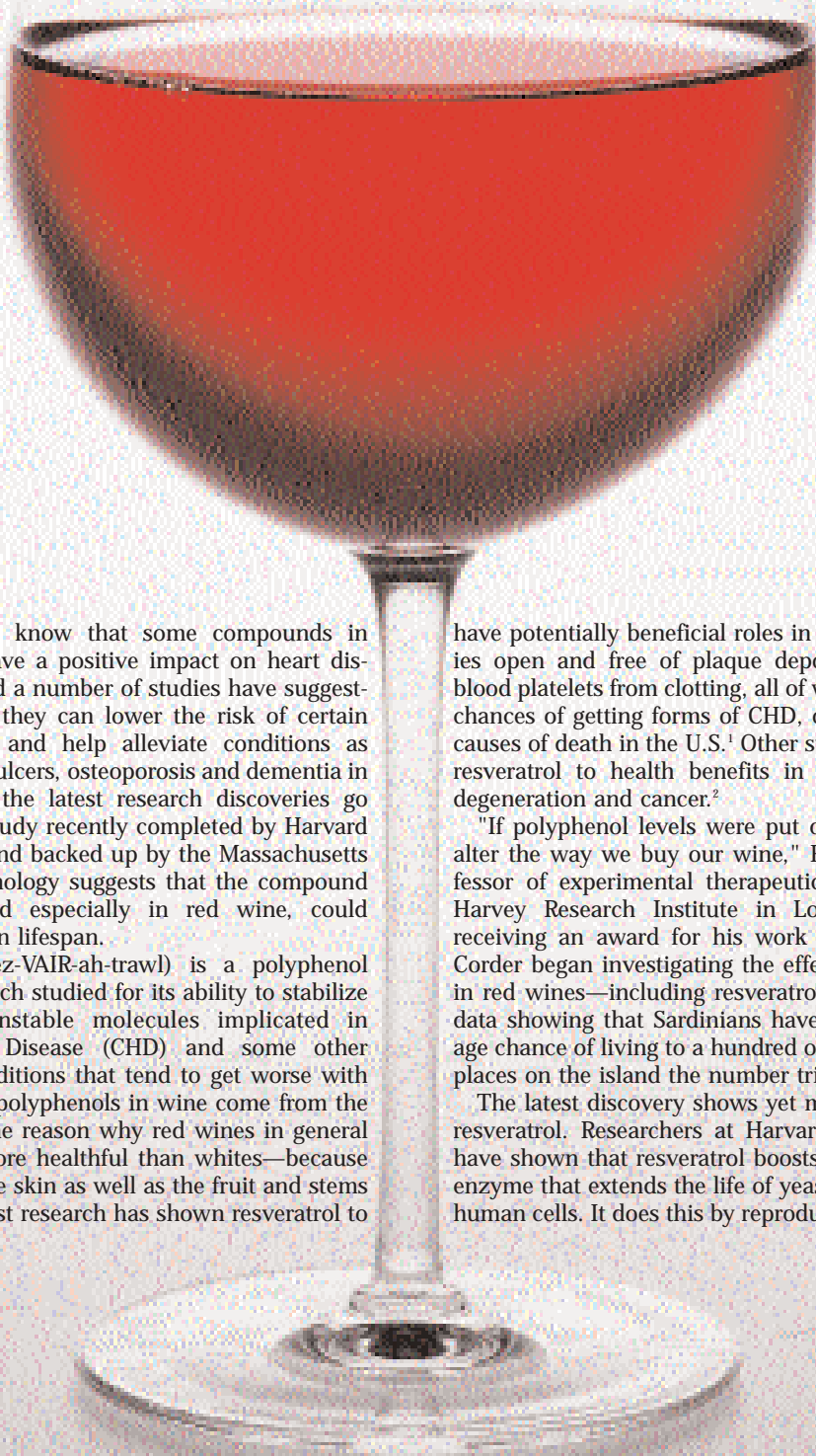
Label Claim: “Some organic ingredients.” May state the organic status of ingredients in the ingredients statement.

Organic Content: May contain less than 70% organic ingredients, not counting added water and salt. May contain over 30% of nonorganically produced agricultural ingredients and/or other substances.

16 Highest Sulfite Wines

| | Sulfites (ppm) | Sulfites (g/5 oz) | Health Score |
|---|----------------|-------------------|--------------|
| Black Swan Vineyards Chardonnay 2002 | 182 | 0.0262 | 70 |
| Yellow Tail Chardonnay 2002 | 166 | 0.0239 | 69 |
| Chateau Haut-Brion 1999 | 156 | 0.0225 | 92 |
| Charles Shaw Chardonnay 2002 | 145 | 0.0209 | 67 |
| Silver Oak Alexander Valley Cabernet 1999 | 142 | 0.0204 | 81 |
| Mouton Rothschild Pauillac 1999 | 141 | 0.0203 | 89 |
| Chateau Margaux 1999 | 135 | 0.0194 | 87 |
| Dominus Napa Valley 1999 | 134 | 0.0193 | 93 |
| Chateau Lafite Rothschild 1999 | 132 | 0.0190 | 86 |
| Montes Alpha Cabernet 2000 | 121 | 0.0174 | 89 |
| Bonterra Cabernet 1999 | 109 | 0.0157 | 80 |
| Black Swan Vineyards Merlot 2002 | 104 | 0.0150 | 84 |
| Opus One Red Wine 1999 | 101 | 0.0145 | 90 |
| Rubicon Niebaum-Coppola 1999 | 101 | 0.0145 | 82 |
| Corbett Canyon Chardonnay 2002 | 101 | 0.0145 | 66 |
| Errazuriz Don Maximiano 1999 | 97.2 | 0.0140 | 92 |

Can Red Wine P



Scientists know that some compounds in wine have a positive impact on heart disease and a number of studies have suggested that they can lower the risk of certain cancers and help alleviate conditions as diverse as peptic ulcers, osteoporosis and dementia in the elderly. But the latest research discoveries go even farther. A study recently completed by Harvard Medical School and backed up by the Massachusetts Institute of Technology suggests that the compound resveratrol, found especially in red wine, could extend our human lifespan.

Resveratrol (rez-VAIR-ah-trawl) is a polyphenol that has been much studied for its ability to stabilize free radicals, unstable molecules implicated in Coronary Heart Disease (CHD) and some other degenerative conditions that tend to get worse with age. Most of the polyphenols in wine come from the skin, which is one reason why red wines in general are inherently more healthful than whites—because red uses the grape skin as well as the fruit and stems in production. Past research has shown resveratrol to

have potentially beneficial roles in keeping the arteries open and free of plaque deposits and keeping blood platelets from clotting, all of which reduce your chances of getting forms of CHD, one of the leading causes of death in the U.S.¹ Other studies have linked resveratrol to health benefits in mitigating neurodegeneration and cancer.²

"If polyphenol levels were put on labels it would alter the way we buy our wine," Roger Corder, professor of experimental therapeutics at the William Harvey Research Institute in London, said after receiving an award for his work in food research. Corder began investigating the effect of polyphenols in red wines—including resveratrol—after reviewing data showing that Sardinians have double the average chance of living to a hundred or beyond. In some places on the island the number triples.³

The latest discovery shows yet more benefits from resveratrol. Researchers at Harvard Medical School have shown that resveratrol boosts production of an enzyme that extends the life of yeast, nematodes and human cells. It does this by reproducing the effects of

rolong Your Life?

calorie restriction, which has long been known to extend human life and health, but which is an extremely difficult way to live.

“What we really want to do is to be able to mimic calorie restriction without having to starve ourselves,” said molecular biologist David Sinclair, assistant professor of pathology at Harvard Medical School.⁴ Sinclair is co-author of study released late last year⁵ which showed that resveratrol activates sirtuins, a family of enzymes known to extend the life span of yeast and nematodes, in some cases up to by up to 80 percent. It works through a known molecular pathway to help both yeast and human cells survive environmental stresses. Scientists believe this same longevity regulatory pathway—which is like a clock that determines how fast the body ages—has passed through evolution to all complex organisms, including humans,⁶ leading to speculation that someday drugs based on resveratrol may help give people longer, healthier lives.⁷

It has been known since the 1930's that seriously cutting calorie consumption appears to make your body's metabolic processes much more efficient and can increase lifespan by up to 50 percent—or to more than 130 years for humans, by current estimates. In order to get the benefits, however, you would have to eat roughly between 40 and 60 percent fewer calories than in a normal diet, which means that you would be

cold and constantly hungry. In addition you would have to have the right combinations of vitamins and minerals so that you would be “undernourished” but not malnourished.

Little wonder, then, that researchers at Harvard and elsewhere are more than excited to find that resveratrol triggers the same effect as caloric restriction, which has been

“If polyphenol levels were put on labels, it would alter the way we buy our wine.”

**Dr. Roger Corder
William Harvey
Research Institute, London**

shown to increase average and maximum life spans (and the fewer the calories consumed, the greater the increase in life.) It lowers the occurrence of age-related diseases, including heart disease, diabetes and cancer. It can prevent kidney disease and cataracts and will forestall Parkinson's and Alzheimer's diseases. It lowers blood cholesterol and staves off the age-related deterioration of the immune system.⁸

Of the wines we tested, the *Chateau Haut-Brion 1999* came out the highest for resveratrol content at .520 milligrams per 5 oz. glass,

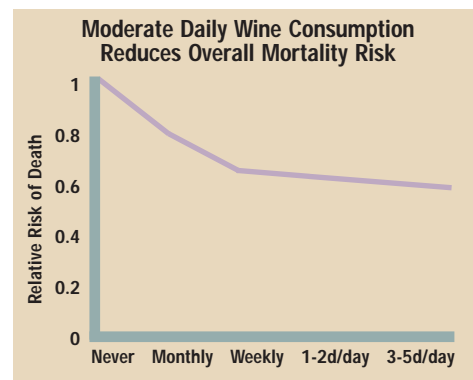
more than 3-1/2 times the average (.145 mg/5 oz.) for the total sample. That's good news if you live in France, where it's undoubtedly cheaper, or if you are rich, because this Premier Cru retails at about \$225 a bottle. Much better news is that the *Black Swan Vineyards Merlot 2000* came in second for resveratrol, at .454 mg/5 oz., still more than three times the average, at about \$7 a bottle—much more in line with its egalitarian Australian roots. Close on its heels, at .433 grams of resveratrol per glass, is the overall health winner, *Badger Mountain Organic Merlot 2002*, at about \$15 a bottle. Perhaps the biggest surprise of the resveratrol test sample, given its final score of only 79 (“Below Average”), is the Australian *Yellow Tail Merlot 2002* which, at .262 mg per glass, came in sixth highest out of 30 tested.

The most accepted theory of how resveratrol is produced is that plants, including grapes, boost production under environmentally stressful conditions, including fungal attacks, low-water conditions and high-altitude climates, or from intentionally produced stress, such as green pruning, where producers cut off some grape clusters in order to get more nutrients—including polyphenols like resveratrol—into the grapes that eventually become wine. While resveratrol is subject to breakdown due to oxidation—which begins

RESVERATROL *cont. on pg. 20*

Ten Highest Resveratrol Content Wines with Price

| | Resveratrol (mg/5 oz) | Approx. Price per 750 ml | Health Score |
|---------------------------------------|-----------------------|--------------------------|--------------|
| Chateau Haut-Brion 1999 | 0.520 | \$225.00 | 92 |
| Black Swan Vineyards Merlot 2002 | 0.454 | \$6.99 | 84 |
| Badger Mountain Organic Merlot 2000 | 0.433 | \$15.00 | 96 |
| Chateau Margaux 1999 | 0.321 | \$200.00 | 87 |
| Primus Veramonte Merlot Cabernet 2000 | 0.301 | \$15.99 | 91 |
| Yellow Tail Merlot 2002 | 0.262 | \$6.99 | 79 |
| Mouton Rothschild Pauillac 1999 | 0.246 | \$160.00 | 89 |
| Chateau Lafite Rothschild 1999 | 0.232 | \$200.00 | 86 |
| Antinori Tignanello 1998 | 0.209 | \$80.00 | 91 |
| Grand Vin De Chateau Latour 1999 | 0.189 | \$225.00 | 93 |



Source: Gronbaek et al, 1995

Charles Shaw Uses Upscale Packaging to Sell Economy Wine

Much-Touted "Two-Buck Chuck" Looks Like Jug Wine

Highest Sugar Content Wines from Recent Test Samples

| | Total Sugar (g/5 oz) | Approx Price/750 ml | Health Score |
|---------------------------------------|-------------------------|------------------------|-----------------|
| Riunite Lambrusco | 8.6 | \$5.99 | 55 |
| Carlo Rossi Chablis** | 2.3 | \$2.10 | 61 |
| Franzia Chablis (5 lb. bag-in-box)*** | 1.6 | \$1.60 | 63 |
| Livingston Chablis Blanc# | 1.6 | \$2.75 | 63 |
| Sutter Home Chardonnay | 1.3 | \$4.49 | 66 |
| Alamden Mountain Chablis* | 1.2 | \$2.50 | 64 |
| Inglenook Chablis# | 1.2 | \$2.25 | 64 |
| Charles Shaw Chardonnay 2002 | 1.0 | \$3.50 | 67 |
| Charles Shaw Merlot 2002 | 1.0 | \$3.50 | 75 |
| Corbett Canyon Chardonnay 2002 | 1.0 | \$4.00 | 66 |
| Ernest & Julio Gallo Chardonnay | 1.0 | \$4.49 | 65 |
| Redwood Creek Chard | 1.0 | \$6.99 | 68 |
| Yellow Tail Chardonnay 2002 | 1.0 | \$6.99 | 69 |
| Yellow Tail Merlot 2002 | 1.0 | \$6.99 | 79 |
| Corbett Canyon Chardonnay | 0.9 | \$5.99 | 67 |
| Corbett Canyon Merlot 2001 | 0.9 | \$8.99 | 78 |

* bag-in-box

** Carlo Rossi total category from IMPACT Databank of U.S. Wine Market 2003

*** Franzia total category from IMPACT

Based on division from larger volume IMPACT category

Please note that not all of these wines are available in the standard bottle (750 ml) size. These prices are approximate, for the nation. Readers should consult their merchants for local prices.

sample tested summer 2003

sample tested spring 2004

Since it was introduced in the Spring of 2002 in a retail chain in California, the \$1.99 Charles Shaw labels have produced millions of words in the specialty and national press and on the Internet, as well as millions of dollars for Fred Franzia, who bought the Charles Shaw label for about \$18,000 in 1995. He has made millions with the label, which racked up \$150 million in sales last year.¹ Consumers got really excited about the prospect of a decent-tasting cheap wine while vintners worried that shoppers would come to expect better quality wines at rock bottom prices.

From a health standpoint, however, only one of the three Charles Shaw wines we tested even made it (just barely) into the "Below Average" category for overall health value, with a total score of 75. That was the Merlot. The Cabernet was one point lower—landing it in the "Unacceptable" category—and the Chardonnay fared even worse, at 67 points.

A good portion of the talk about Charles Shaw, the so-called "Two Buck Chuck," has been the flavor and quality you get for the price (which can be in the neighborhood of \$3.50 depending on where you live²). Our analysis revealed, however, that *Charles Shaw Chardonnay 2002* has a similar sugar level, price and production profile to several well-known jug wines.³ In the same analysis we also tested wines from Franzia, Gallo, Almaden, Carlo Rossi, and Inglenook. *Charles Shaw Chardonnay* had the same sugar level as *Gallo Chardonnay* and was close behind both the *Inglenook Chablis* and *Almaden Mountain Chablis*. (Remember when comparing the sugar levels of Chablis to Chardonnays that Chablis is generally sweeter by nature, which our results confirm.)

The term "jug wine" is a profile that encompasses sugar, price and production method. It is generally sweet and low in acid,

is mass-produced in stainless steel tanks, and comes from high-yielding vineyards. Charles Shaw, like the others, fulfills all of these. High yielding means that the vineyard grower is interested in getting the most crop from each acre, and is not overly concerned with quality. Steel tank production means there is, for example, no extra flavoring such as you would get from oak barrels—as we see with *Kendall Jackson Vintners Reserve Chardonnay*, whose significantly higher shelf price reflects the higher costs of producing wine using oak barrels. This is why Kendall-Jackson is in a higher price bracket than the Charles Shaw, Yellow Tail, Corbett Canyon, Redwood Creek and Gallo Chardonnays.

The Kendall Jackson scored only a 69 for overall health value, an “Unacceptable” rating. We must note, however, that the ranking does not take into account the recent discovery—too late-breaking for us to test for—that oak barrels impart, along with a flavorful bouquet, the polyphenol *acutissimin A*, which is formed when grape must and oak come into contact. Test tube studies have shown the polyphenol to be some 250 times more powerful than a clinically used cancer drug, according to new research recently published in the chemistry journal *Angewandte Chemie*.⁴

Merlot is generally lower in sugar than Chardonnay, yet *Charles Shaw Merlot 2002* has as much or more sugar than the six Chardonnays we have tested, including the sweet *Yellow Tail Chardonnay*. Now look at *Columbia Crest* and *Clos du Bois Merlots*.⁵ *Charles Shaw Merlot* has 10 times more sugar than they do. There are two reasons for a high sugar content in wine. Either the fermentation process is prematurely halted before all the sugar is converted to alcohol, or sweet unfermented grape juice is added to the fermented wine. In cases where wine is deemed too sweet for the target taste, vintners will sometimes add tartaric acid to offset the sweetness.⁶

So what does this say about the health value of Charles Shaw and similar wines? The interplay of healthful elements in wine is a complex one, and is subject to debates in several fields of research, where the full picture is slowly unfolding. As was noted in our last issue, while there is no single component that can serve as a general indicator of the overall quality of a label, sugar level comes closer than any other one studied.⁷

And Charles Shaw is no exception to this trend.

Drinkers with discerning palates are often attracted to the drier (lower sugar) wines, and our findings from the two most recent issues show that, generally speaking, this preference also leads them toward healthier wines, including a number that did well in the overall rankings this time and last. None of the five top sugar wines scored better than “Unacceptable” this time around. None of the five top sugar wines in the last issue did either.

1 ABC news, *Battle of the Bottles, Napa Valley Winemakers Sue to Exclude Upstart \$2 Brand from Napa Club*, Jan. 10, 2004

2 Trader Joe's website says the price of Charles Shaw varies from \$1.99 to \$3.39, due to transportation costs, taxes and various state distribution laws. See www.traderjoes.com/new/chuckshaw.asp

3 Also referred to “Economy-Priced wines” by the 2003 “IMPACT Databank U.S. Wine Market Review and Forecast,” the industry standard databank for wine

4 Quideau, S. et al., DNA topoisomerase inhibitor acutissimin A and other flavano ellagitannins in table wine, Dec. 15, 2004, *Angewandte Chemie*, (Applied Chemistry), International edition

5 See the sugar content table on page 19

6 Sugar that has been masked by tartaric acid is referred to as “hidden sugar.”

7 Truth in Wine, Summer, 2003

If “Two Buck Chuck” Is Jug Wine, Why Is It Selling So Well?

Jug wine, despite its generally low health value [see related story], sells really well in the U.S. Franzia, Gallo Livingston Cellars, Carlo Rossi, Inglenook and Almaden Bag-in-the-Box racked up an estimated \$1,195 million in sales in 2002¹. When Fred Franzia, who once owned the Franzia brand, bought the Charles Shaw brand and launched what is popularly known as “Two Buck Chuck,” he was using premium grapes bought amidst a market glut due to over-planting. At the same time, the slowing economy pushed consumer buying preference downwards in price. Thus, in the beginning, at Trader Joe's stores in California, Franzia was over-delivering quality in Charles Shaw wines. The brand grew so much, though—1.8 million cases² sold in 2003—that he had to start buying bulk grapes. At the same time the premium glut subsided, and the Charles Shaw quality dropped. Now owner Franzia is being sued by a group of Napa Valley growers who claim that he doesn't make “Two Buck Chuck” with Napa-grown grapes, and that his labels, which read “cellared and bottled” in Napa, are misleading to consumers. So far, however, Franzia has won in court.³



Don't believe the hype, unless you like jug wine.

Familiar Recipe, New Bottle

Looking at the lab analysis, it appears that Charles Shaw is “recipe wine,” with a similar sweetness level, the same lack of oak and the steel tank production you find with the Franzia Bag-in-the-Box wines, very successful sellers. (Franzia sold 20 million cases, with \$401 million in sales, in 2002⁴). In fact, if you check the sugar profile from *Franzia Chablis* in our Summer 2003 edition⁵, you can see it is right up there with the jug wines. It was near the bottom of the sample for health value, earning a rating of “Unacceptable.”

So Charles Shaw started out over-delivering on quality during a market glut on premium grapes and, when that dried up, went back to the successful Franzia formula.

Charles Shaw became a jug wine in a nice bottle with strong sales and a lot of industry buzz. The famed “Coca Cola” palate of the average American prevailed and ABC's 20/20 news program, which later interviewed Franzia, approached *Wine & Health* for their analysis date of “Two Buck Chuck.”

If you wonder why the sweet-tooth wines persist, bear in mind that the inexpensive Chablis⁷ and Chardonnays, consistently the most sweet, are often the point of entry for new wine drinkers. Dry wine is an acquired taste. So many wineries deliberately make certain wines sweet. Industry stats show that wine consumers between the ages of 21 and 25 buy more Chardonnay than Cabernet. Between the ages of 26 and 35 it swings the other way and they drink twice as much Cabernet as Chardonnay.⁶ Perhaps the most interesting thing about the whole “Two Buck Chuck” whirlwind is that it may be telling us that now there is room in the jug wine market for drinkers with slightly more mature tastes.

1 IMPACT Databank, *The US Wine Market 2003*

2 IMPACT, *Ibid*

3 ABC news, *Battle of the Bottles, Napa Valley Winemakers Sue to Exclude Upstart \$2 Brand from Napa Club*, Jan. 10, 2004

4 IMPACT, *Ibid*

5 Or see the comprehensive scores table on page 23

6 IMPACT, *Ibid*

Wine Carbs Are Tricky to Understand, Easy to Burn

If You're Counting Them, Look to Alcohol Levels as Well

If you go into a restaurant these days and tell the server "no bread" along with your order, everyone assumes you are on the Atkins Diet—or one of several others that also frown on using carbohydrates to give your body energy. Even the name Atkins has become almost synonymous with "no carbohydrates," while the bread industry itself reports that some 40 percent of Americans ate less bread in 2003 than in 2002. Wherever you stand on the issue, you should know that wine in general has very low carbohydrate levels, and those measured and labeled as "carbohydrates" in wine don't really act like a true carb anyway. It's more of a hollow calorie. In fact, most of the calories in wine come from alcohol content.

The other misconception that many people have when looking at the nutritional value of wines is to think that sweet wine is higher in sugar—a carbohydrate source—and that dry wine is therefore lower in carbs. The fact is that carbohydrates in wine come from the alcohol content, not the sugar. Sweetness or dryness in wine is a matter of the wine's taste, which comes from other factors.

So if you care about carb levels in wine, look first at the alcohol levels. Because what happens is the liver converts most of the alcohol to acetate, which is easily burned up by the body. In fact, acetate is one of the four basic kinds of fuel the body needs, along with fat, protein and carbohydrates. Carbs are easy to burn and the body goes there first when in need of fuel. Acetate next. The idea behind the Atkins Diet is to remove that easy burn, so the body will switch to burning fat, which is harder to

process. The only downside to burning acetate is that the body will go there before moving on to fat, so there is a bit of a stalling effect.

Alcohol Carbs Have Advantages Over Others

The advantage alcohol has over traditional carbs is that it actually lowers your blood sugar levels, whereas carbs raise them. The typical scenario—familiar to anyone with hypoglycemia (low blood sugar)—is that carbs raise blood sugar, the pancreas registers too much sugar in the system and then releases insulin as a counter measure. You go up, you feel good and then you get sluggish. Acetate from alcohol doesn't do this. It lowers blood sugar levels. And alcohol also raises your High Density Lipoprotein (HDL) level—the so-called "good" cholesterol. This can be even more important for people on a high-fat regime, who can use that HDL to offset the gain of "bad" cholesterol—LDL, or Low Density Lipoprotein—they are getting with the extra fat intake.

The main reason for the current Atkins advice on wine—a little is OK, but go slow in the Induction Period—is apparently because in those first two weeks, the withdrawal from carbohydrates could cause cravings which would perhaps be agitated by any movement in blood sugar levels, up or down. Atkins himself has changed his tune on alcohol over the years. His first book in 1972 didn't mention it. Later it became verboten in the Induction Period, and after that he flip-flopped, first saying red wine was okay and white not, and then reversing that advice.

Carbs: What We Found This Time Around

As to the specific wines in this edition, the sample analyzed shows a small difference between the highest and lowest for carbohydrates alone (again, without considering alcohol in the same graph). If you are counting only non-alcohol carbs, we note that the highest came from the *Yellow Tail Merlot*, at 3.5 grams per 5 oz. serving. The lowest was *Woodbridge Chardonnay* at 1.3 grams per 5 oz. serving. If you're really concerned about burning nothing but fat, look at the alcohol levels first and foremost. Then the carbs. Every table wine bottle sold in the U.S. is required to state the percentage of alcohol content on the label, though it is allowed to vary by up to 1.5 percent lower or higher. Consult the Alcohol table [page 16] if you want to know the actual alcohol contents of the wines we tested.

And if you want to know the approximate caloric value of any wine, there is a simple method you can use. Take the percentage on the bottle and insert it into the following equation: $1.6 \times \text{percentage on label} \times \text{number of ounces in your glass}$. (At *Wine & Health* we use the federal standard of a five-ounce glass for test sample size.) Thus a 12-percent alcohol wine in a standard glass would yield: $1.6 \times 12 \times 5$ or $1.6 \times 60 = 96$ calories. For anyone who feels guilty about having a glass of wine while living the low-carb lifestyle, just remember: acetate is a good energy source and you're not gaining fat, you're just holding off burning it for a while.

16 Highest Carbohydrate Wines by Alcohol Content

| | Carbs (g/5 oz) | Alcohol % vol. | Health Score |
|-------------------------------------|-------------------|-------------------|-----------------|
| Yellow Tail Merlot 2002 | 3.5 | 13.7 | 79 |
| Charles Shaw Merlot 2002 | 3.2 | 13.2 | 75 |
| Corbett Canyon Merlot 2001 | 3.2 | 12.5 | 78 |
| Yellow Tail Cabernet 2002 | 3.2 | 13.6 | 77 |
| Black Swan Cabernet 2002 | 3.0 | 13.6 | 81 |
| Errazuriz Don Maximiano 1999 | 3.0 | 14.0 | 92 |
| Charles Shaw Cabernet 2001 | 2.9 | 12.1 | 74 |
| Charles Shaw Chardonnay 2002 | 2.9 | 13.4 | 67 |
| Black Swan Merlot 2002 | 2.7 | 13.3 | 84 |
| Don Melchor Cabernet 1998 | 2.7 | 13.1 | 88 |
| Montes Alpha Cabernet 2000 | 2.7 | 14.0 | 89 |
| Corbett Canyon Chardonnay 2002 | 2.6 | 13.5 | 66 |
| Rubicon Niebaum-Coppola 1999 | 2.6 | 14.6 | 82 |
| Silver Oak Cabernet 1999 | 2.6 | 13.1 | 81 |
| Yellow Tail Chardonnay 2002 | 2.6 | 13.0 | 69 |
| Badger Mountain Organic Merlot 2000 | 2.4 | 13.0 | 96 |

16 Highest Alcohol Wines by Carbohydrate Content

| | Carbs (g/5 oz) | Alcohol % /vol. | Health Score |
|-------------------------------------|-------------------|--------------------|-----------------|
| Frey Zinfandel 2001 | 2.0 | 15.6 | 81 |
| Rubicon Niebaum-Coppola 1999 | 2.6 | 14.6 | 82 |
| Primus Merlot Cabernet 2000 | 2.4 | 14.3 | 91 |
| Dominus Napa Valley 1999 | 2.4 | 14.3 | 93 |
| Errazuriz Don Maximiano 1999 | 3.0 | 14.0 | 92 |
| Montes Alpha Cabernet 2000 | 2.7 | 14.0 | 89 |
| Yellow Tail Merlot 2002 | 3.5 | 13.7 | 79 |
| Yellow Tail Cabernet 2002 | 3.2 | 13.6 | 77 |
| Opus One Red Wine 1999 | 2.4 | 13.6 | 90 |
| Black Swan Cabernet 2002 | 3.0 | 13.6 | 81 |
| Beringer Private Res. Cabernet 1996 | 2.4 | 13.6 | 83 |
| Bonterra Cabernet 1999 | 2.4 | 13.5 | 80 |
| Bonterra Chardonnay 2001 | 2.2 | 13.5 | 70 |
| Corbett Canyon Chardonnay 2002 | 2.6 | 13.5 | 66 |
| Charles Shaw Chardonnay 2002 | 2.9 | 13.4 | 67 |
| Black Swan Merlot 2002 | 2.7 | 13.3 | 84 |

The French Old Guard Takes on the World

We took what are arguably the best wines in the world, the French Premier Crus, and put them up against some other styles that also have strong health value or other positive qualities for which they are known. Thus we analyzed these old French “grandfathers”—the stuff that James Bond drinks—alongside some boutique Chileans, top-notch American labels, some other—over-rated—domestics, and a few organic category wines.

Why research the world's most expensive and rare wines? First, we know that these producers make a limited amount of wine from select vineyards. If the wines are from vineyards on or around their estate, it is easier to know, for example, that they are made from older vines, or that they have survived a particular weather cycle, or that they come from a specific altitude. Quite often the vines are pruned in such a way that the nutrients are concentrated into a smaller number of grape clusters, which is only one of the reasons why these wines are more expensive—because the yields are smaller, if more potent.

Also water is important. Or rather the lack of it. The poorer the soil, the deeper and wider the vine will root, according to internationally recognized wine specialists Jancis Robinson and Hugh Johnson. “Hence the paradox that poor soil makes good wine,” they write in the *The World Atlas of Wine*. “There is an ancient Bordeaux saying that ‘the vines should look at the river.’ This theory explains it. It also explains why the old vines tend to give the best wine: their roots are deepest.”¹

All of these factors have an impact on the health value of the wine you eventually drink. On the other hand, with grapes that are bought from the open market in bulk (as with latter-day *Charles Shaw* and the other jug wines—see related story), there is no way to know from which exact climate, altitude or vine age they were harvested. None of the makers of Bordeaux first growths (literally “premier cru” in French), or the Chilean or American boutique wines tested in this issue buy many grapes. Most of the grapes they use are grown on their own estates.

So How Healthy Is That \$225 Bottle Of Chateau Haut-Brion, Anyway?

As it turns out, the good stuff is, well, good. At least when it comes to health value. Two of the five French first growth reds scored in the “Outstanding” category for health value, while the other three were spread through the “Good” category. [See related tables.] All scored in the top 15 for overall health value, and were in the top 15 again for decreased sulfite content. Sulfites occur naturally in wine and are often added by vintners, as they have been for millennia, as a stabilizer and preservative. Certain people are sensitive to sulfites.

Defining the health benefits of wine is not a straightforward undertaking because of the complex interplay of elements in the wine, including alcohol (as distinct from wine-specific elements) which offers its own health benefits when taken in moderation. And then there is the question of how a given wine will act in a given human being. When researchers speak of the “bio-activity” or “bio-availability” of specific components, what they are looking for is evidence of what actually happens when wine gets inside you. While there are a number of very vibrant debates now afield among the numerous research endeavors regarding wine and wine components, the rest of us want to know which ones to drink, now. The good news is that we often have the beginning and we have the end of the process, if not the middle, when it comes to the health effects of wine. That is to say that studies do show promising results of wine drinking on various diseases and conditions.

One of the most famous of these effects—it's actually a series of them—has been dubbed the French Paradox, first widely reported in the early 90's. This is the phenomenon whereby the wine-guzzling, cigarette-smoking, fat-eating French have fewer heart attacks than their confreres in many other industrialized nations, including the United States.² The French (particularly the men) have “the lowest mortality rate from ischemic heart disease and cardiovascular diseases in Western industrialized nations.” They are 36 percent lower than the U.S. death rates and 39 percent lower than those in the United Kingdom.³ (An ischemic stroke

is one caused by arteriosclerosis, hardening of the arteries, as distinct from the rarer and more serious hemorrhagic stroke, which is due to sudden bleeding in the brain.)

In addition, a number of scientific reports have shown that the moderate consumption of wine, as distinct from beer or spirits, is associated with a reduced risk of stroke, leading researchers to postulate that certain protective effects of wine could be linked to compounds in the wine, and not alcohol.⁴

Polyphenols Decrease Free Radicals

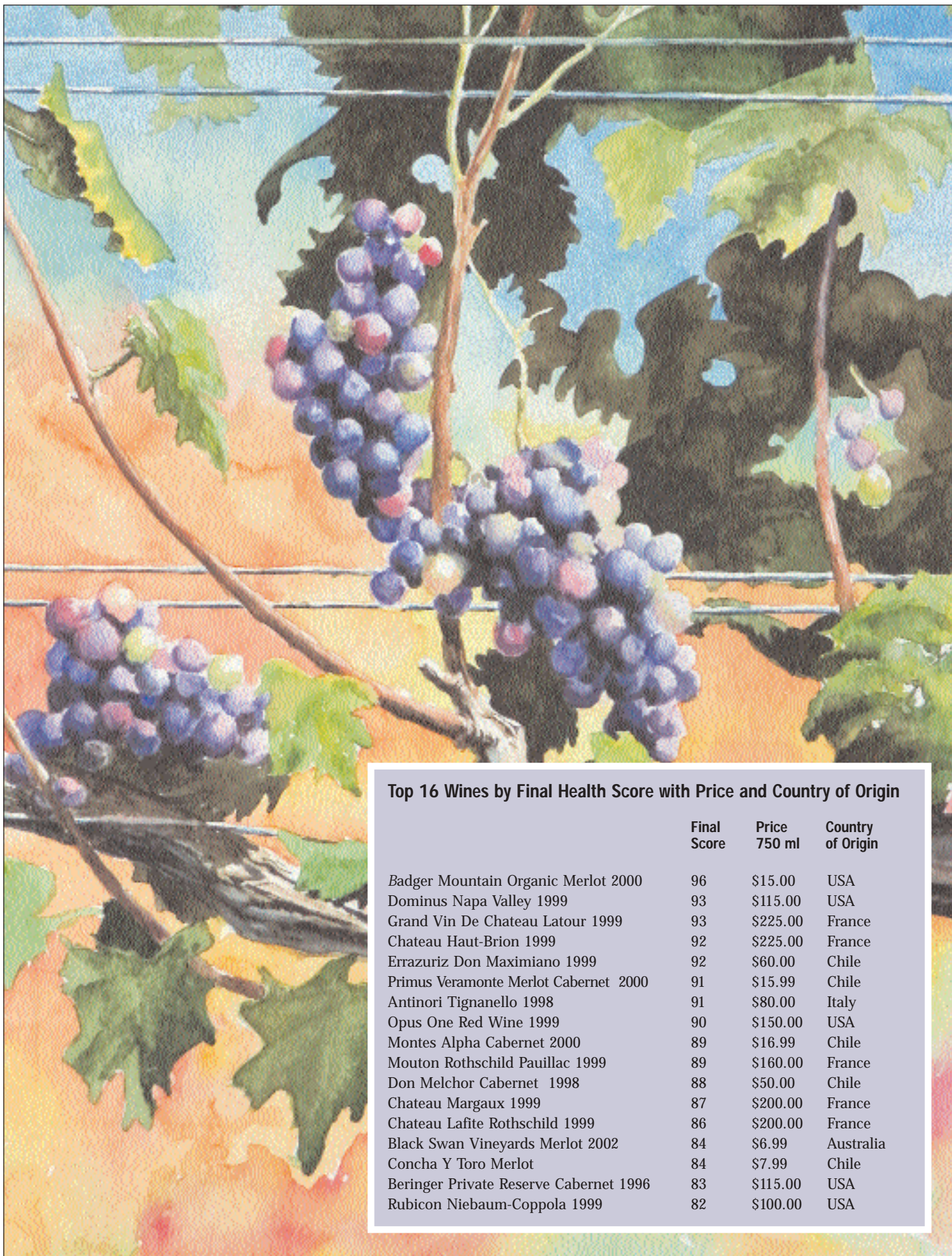
In recent years there has been much written about damaging free radicals and the molecules that can stop them, called antioxidants. A lot of research on the health benefits of wine has focused on plant compounds called polyphenols (including resveratrol), which are antioxidants, compounds that inhibit the formation of free radicals.

This idea of oxidative damage done by free radicals is the foremost theory as to what causes the deterioration that comes with age.⁵ The irony is that while oxygen causes damage, oxygen conversion is at the core of metabolism—the creation of cellular fuel. This is called the “oxygen paradox.” The process takes place in cellular factories called mitochondria, where energy for our body is produced. Free radicals are a byproduct of the process. They can also arise from environmental factors such as pollution, radiation, herbicides or cigarette smoke. A gerontologist at UCLA has dubbed them “the great white sharks of the biochemical sea—short-lived but voracious agents.”⁶

Normal molecules have two electrons that circulate on opposite sides in each orbit, which balances the molecule and makes it unavailable to react with other molecules. A free radical (another name is “oxidant”) is a molecule missing one electron, which causes it to seek another electron to pair with. If that other electron belongs to a protein molecule, like an enzyme or a hormone, or DNA, the stolen pairing often destroys that molecule or alters its functioning. The attacked molecule itself can become a free radical, as a result of losing an electron.

Once the process is started, there can be a

OLD GUARD *cont. on pg. 21*



Top 16 Wines by Final Health Score with Price and Country of Origin

| | Final Score | Price 750 ml | Country of Origin |
|--|-------------|--------------|-------------------|
| Badger Mountain Organic Merlot 2000 | 96 | \$15.00 | USA |
| Dominus Napa Valley 1999 | 93 | \$115.00 | USA |
| Grand Vin De Chateau Latour 1999 | 93 | \$225.00 | France |
| Chateau Haut-Brion 1999 | 92 | \$225.00 | France |
| Errazuriz Don Maximiano 1999 | 92 | \$60.00 | Chile |
| Primus Veramonte Merlot Cabernet 2000 | 91 | \$15.99 | Chile |
| Antinori Tignanello 1998 | 91 | \$80.00 | Italy |
| Opus One Red Wine 1999 | 90 | \$150.00 | USA |
| Montes Alpha Cabernet 2000 | 89 | \$16.99 | Chile |
| Mouton Rothschild Pauillac 1999 | 89 | \$160.00 | France |
| Don Melchor Cabernet 1998 | 88 | \$50.00 | Chile |
| Chateau Margaux 1999 | 87 | \$200.00 | France |
| Chateau Lafite Rothschild 1999 | 86 | \$200.00 | France |
| Black Swan Vineyards Merlot 2002 | 84 | \$6.99 | Australia |
| Concha Y Toro Merlot | 84 | \$7.99 | Chile |
| Beringer Private Reserve Cabernet 1996 | 83 | \$115.00 | USA |
| Rubicon Niebaum-Coppola 1999 | 82 | \$100.00 | USA |

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Understanding the Scores

These rankings assign each label a composite score, where the potentially undesirable contents of a wine are weighed against its desirable ones. Thus the wines at the top of the Composite Score Sheet are not necessarily the highest scorers in every category, but are those that have the best overall standings. Rankings on a particular component—say sulfites or resveratrol levels—are provided on the individual element tables that follow. Where contents are related such as alcohol and carbohydrates, they are combined in a single table.

Health Score Index

95-100: Excellent

90-94: Outstanding

85-89: Good

80-84: Acceptable

75-79: Below Average

74 and below: Unacceptable

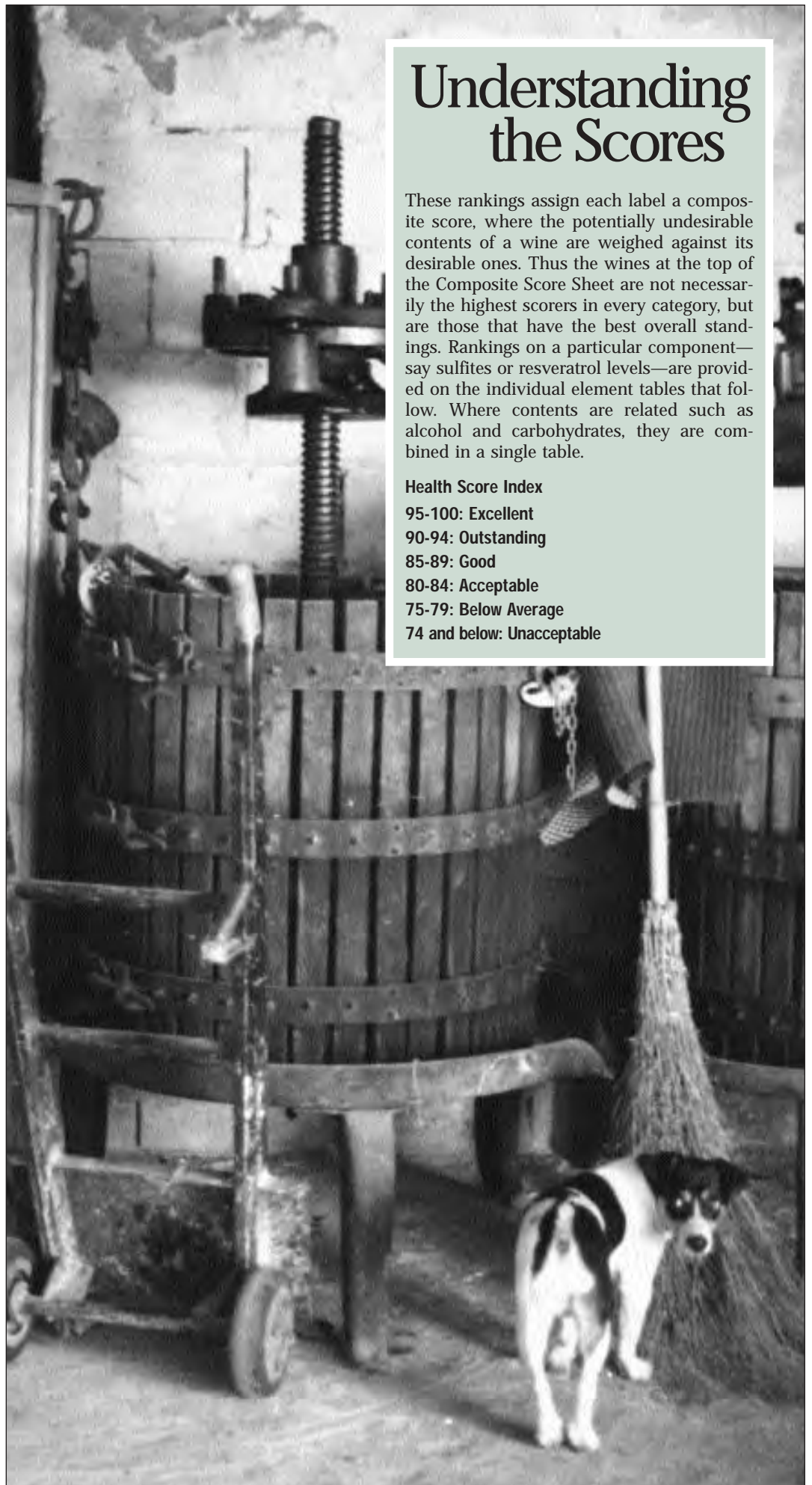


Photo: Ann Renzy

Wines Ranked By Price

| | Approx. Price per 750 ml | Health Score |
|---|-----------------------------|-----------------|
| Grand Vin De Chateau Latour 1999 | \$225.00 | 93 |
| Chateau Haut-Brion 1999 | \$225.00 | 92 |
| Chateau Margaux 1999 | \$200.00 | 87 |
| Chateau Lafite Rothschild 1999 | \$200.00 | 86 |
| Mouton Rothschild Pauillac 1999 | \$160.00 | 89 |
| Opus One Red Wine 1999 | \$150.00 | 90 |
| Dominus Napa Valley 1999 | \$115.00 | 93 |
| Beringer Private Reserve Cabernet Sauvignon 1996 | \$115.00 | 83 |
| Rubicon Niebaum-Coppola 1999 | \$100.00 | 82 |
| Antinori Tignanello 1998 | \$80.00 | 91 |
| Silver Oak Alexander Valley Cabernet Sauvignon 1999 | \$80.00 | 81 |
| Errazuriz Don Maximiano 1999 | \$60.00 | 92 |
| Don Melchor Cabernet Sauvignon 1998 | \$50.00 | 88 |
| Bonterra Cabernet Sauvignon 1999 | \$17.00 | 80 |
| Montes Alpha Cabernet 2000 | \$16.99 | 89 |
| Primus Veramonte Carmenere Merlot Cabernet Sauvignon 2000 | \$15.99 | 91 |
| Badger Mountain Organic Merlot 2000 | \$15.00 | 96 |
| Bonterra Chardonnay 2001 | \$15.00 | 70 |
| Frey Zinfandel 2001 | \$13.00 | 81 |
| Corbett Canyon Merlot 2001 | \$8.99 | 78 |
| Black Swan Vineyards Chardonnay 2002 | \$8.99 | 70 |
| Black Swan Vineyards Merlot 2002 | \$6.99 | 84 |
| Black Swan Cabernet Sauvignon 2002 | \$6.99 | 81 |
| Yellow Tail Merlot 2002 | \$6.99 | 79 |
| Yellow Tail Cabernet Sauvignon 2002 | \$6.99 | 77 |
| Yellow Tail Chardonnay 2002 | \$6.99 | 69 |
| Corbett Canyon Chardonnay 2002 | \$4.00 | 66 |
| Charles Shaw Merlot 2002 | \$3.50 | 75 |
| Charles Shaw Cabernet Sauvignon 2001 | \$3.50 | 74 |
| Charles Shaw Chardonnay 2002 | \$3.50 | 67 |

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Wines Ranked by Alcohol Content with Carbohydrate Content

| | Carbs (g/5 oz) | Alcohol % /vol. | Health Score |
|---|-------------------|--------------------|-----------------|
| Frey Zinfandel 2001 | 2.0 | 15.6 | 81 |
| Rubicon Niebaum-Coppola 1999 | 2.6 | 14.6 | 82 |
| Primus Veramonte Merlot Cabernet 2000 | 2.4 | 14.3 | 91 |
| Dominus Napa Valley 1999 | 2.4 | 14.3 | 93 |
| Errazuriz Don Maximiano 1999 | 3.0 | 14.0 | 92 |
| Montes Alpha Cabernet 2000 | 2.7 | 14.0 | 89 |
| Yellow Tail Merlot 2002 | 3.5 | 13.7 | 79 |
| Yellow Tail Cabernet 2002 | 3.2 | 13.6 | 77 |
| Opus One Red Wine 1999 | 2.4 | 13.6 | 90 |
| Black Swan Cabernet Sauvignon 2002 | 3.0 | 13.6 | 81 |
| Beringer Private Reserve Cabernet 1996 | 2.4 | 13.6 | 83 |
| Bonterra Cabernet 1999 | 2.4 | 13.5 | 80 |
| Bonterra Chardonnay 2001 | 2.2 | 13.5 | 70 |
| Corbett Canyon Chardonnay 2002 | 2.6 | 13.5 | 66 |
| Charles Shaw Chardonnay 2002 | 2.9 | 13.4 | 67 |
| Black Swan Vineyards Merlot 2002 | 2.7 | 13.3 | 84 |
| Chateau Haut-Brion 1999 | 2.2 | 13.2 | 92 |
| Charles Shaw Merlot 2002 | 3.2 | 13.2 | 75 |
| Black Swan Vineyards Chardonnay 2002 | 2.4 | 13.1 | 70 |
| Antinori Tignanello 1998 | 2.4 | 13.1 | 91 |
| Don Melchor Cabernet Sauvignon 1998 | 2.7 | 13.1 | 88 |
| Silver Oak Alexander Valley Cabernet 1999 | 2.6 | 13.1 | 81 |
| Yellow Tail Chardonnay 2002 | 2.6 | 13.0 | 69 |
| Badger Mountain Organic Merlot 2000 | 2.4 | 13.0 | 96 |
| Grand Vin De Chateau Latour 1999 | 2.2 | 12.8 | 93 |
| Chateau Margaux 1999 | 2.0 | 12.7 | 87 |
| Chateau Lafite Rothschild 1999 | 2.3 | 12.6 | 86 |
| Corbett Canyon Merlot 2001 | 3.2 | 12.5 | 78 |
| Charles Shaw Cabernet 2001 | 2.9 | 12.1 | 74 |
| Mouton Rothschild Pauillac 1999 | 2.3 | 12.0 | 89 |

Wine, in general, has very low carbohydrate levels and those it does have come from alcohol content. Alcohol is converted by the liver to acetate, one of the four basic fuels that the body burns along with carbohydrates, fat, and protein. Carbs are easiest to burn, acetate next, followed by fat and protein. Another advantage alcohol carbs have over traditional carbs is that they actually lower blood sugar levels, whereas carbs raise them. Acetate also raises High Density Lipoprotein (HDL) levels—the so called “good” cholesterol.

Wines Ranked by Carbohydrate Content with Alcohol Content

| | Carbs (g/5 oz) | Alcohol % /vol | Health Score |
|---|-------------------|-------------------|-----------------|
| Yellow Tail Merlot 2002 | 3.5 | 13.7 | 79 |
| Charles Shaw Merlot 2002 | 3.2 | 13.2 | 75 |
| Corbett Canyon Merlot 2001 | 3.2 | 12.5 | 78 |
| Yellow Tail Cabernet 2002 | 3.2 | 13.6 | 77 |
| Black Swan Cabernet 2002 | 3.0 | 13.6 | 81 |
| Errazuriz Don Maximiano 1999 | 3.0 | 14.0 | 92 |
| Charles Shaw Cabernet 2001 | 2.9 | 12.1 | 74 |
| Charles Shaw Chardonnay 2002 | 2.9 | 13.4 | 67 |
| Black Swan Vineyards Merlot 2002 | 2.7 | 13.3 | 84 |
| Don Melchor Cabernet 1998 | 2.7 | 13.1 | 88 |
| Montes Alpha Cabernet 2000 | 2.7 | 14.0 | 89 |
| Corbett Canyon Chardonnay 2002 | 2.6 | 13.5 | 66 |
| Rubicon Niebaum-Coppola 1999 | 2.6 | 14.6 | 82 |
| Silver Oak Alexander Valley Cabernet 1999 | 2.6 | 13.1 | 81 |
| Yellow Tail Chardonnay 2002 | 2.6 | 13.0 | 69 |
| Badger Mountain Organic Merlot 2000 | 2.4 | 13.0 | 96 |
| Beringer Private Reserve Cabernet 1996 | 2.4 | 13.6 | 83 |
| Black Swan Vineyards Chardonnay 2002 | 2.4 | 13.1 | 70 |
| Bonterra Cabernet 1999 | 2.4 | 13.5 | 80 |
| Dominus Napa Valley 1999 | 2.4 | 14.3 | 93 |
| Opus One Red Wine 1999 | 2.4 | 13.6 | 90 |
| Primus Veramonte Merlot Cabernet 2000 | 2.4 | 14.3 | 91 |
| Antinori Tignanello 1998 | 2.4 | 13.1 | 91 |
| Chateau Lafite Rothschild 1999 | 2.3 | 12.6 | 86 |
| Mouton Rothschild Pauillac 1999 | 2.3 | 12.0 | 89 |
| Bonterra Chardonnay 2001 | 2.2 | 13.5 | 70 |
| Chateau Haut-Brion 1999 | 2.2 | 13.2 | 92 |
| Grand Vin De Chateau Latour 1999 | 2.2 | 12.8 | 93 |
| Chateau Margaux 1999 | 2.0 | 12.7 | 87 |
| Frey Zinfandel 2001 | 2.0 | 15.6 | 81 |

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Wines Ranked by Sulfite Content

| | Sulfites (ppm) | Sulfites (g/5 oz) | Health Score |
|---|-------------------|----------------------|-----------------|
| Black Swan Vineyards Chardonnay 2002 | 182 | 0.0262 | 70 |
| Yellow Tail Chardonnay 2002 | 166 | 0.0239 | 69 |
| Chateau Haut-Brion 1999 | 156 | 0.0225 | 92 |
| Charles Shaw Chardonnay 2002 | 145 | 0.0209 | 67 |
| Silver Oak Alexander Valley Cabernet 1999 | 142 | 0.0204 | 81 |
| Mouton Rothschild Pauillac 1999 | 141 | 0.0203 | 89 |
| Chateau Margaux 1999 | 135 | 0.0194 | 87 |
| Dominus Napa Valley 1999 | 134 | 0.0193 | 93 |
| Chateau Lafite Rothschild 1999 | 132 | 0.0190 | 86 |
| Montes Alpha Cabernet 2000 | 121 | 0.0174 | 89 |
| Bonterra Cabernet Sauvignon 1999 | 109 | 0.0157 | 80 |
| Black Swan Vineyards Merlot 2002 | 104 | 0.0150 | 84 |
| Opus One Red Wine 1999 | 101 | 0.0145 | 90 |
| Rubicon Niebaum-Coppola 1999 | 101 | 0.0145 | 82 |
| Corbett Canyon Chardonnay 2002 | 101 | 0.0145 | 66 |
| Errazuriz Don Maximiano 1999 | 97.2 | 0.0140 | 92 |
| Bonterra Chardonnay 2001 | 87.5 | 0.0126 | 70 |
| Yellow Tail Merlot 2002 | 83.7 | 0.0121 | 79 |
| Antinori Tignanello 1998 | 79.6 | 0.0115 | 91 |
| Grand Vin De Chateau Latour 1999 | 71.3 | 0.0103 | 93 |
| Black Swan Cabernet Sauvignon 2002 | 69.6 | 0.0100 | 81 |
| Beringer Private Reserve Cabernet 1996 | 67.7 | 0.00975 | 83 |
| Don Melchor Cabernet 1998 | 59.6 | 0.00858 | 88 |
| Charles Shaw Cabernet 2001 | 55.7 | 0.00802 | 74 |
| Yellow Tail Cabernet 2002 | 44.9 | 0.00647 | 77 |
| Primus Veramonte Merlot Cabernet 2000 | 36.2 | 0.00521 | 91 |
| Charles Shaw Merlot 2002 | 34.6 | 0.00498 | 75 |
| Corbett Canyon Merlot 2001 | 27.3 | 0.00393 | 78 |
| Badger Mountain Organic Merlot 2000 | < 8 | 0.00115 | 96 |
| Frey Zinfandel 2001 | < 8 | 0.00115 | 81 |

Sulfites comprise six different compounds of sulfur dioxide. Low levels occur naturally in wine; high levels come from spraying grapes with herbicides and pesticides, and/or sulfites added as a preservative and stabilizer to stop the oxidation that can brown wine. According to the Food and Drug Administration (FDA), a small number of people—about 2.9 million, or one percent of the U.S. population—is sensitive to sulfites. A small percentage of sensitive people, including asthmatics, can suffer anaphylactic shock or even death from sulfite ingestion. Federal regulations require all packaged food, including wine, to carry the phrase “contains sulfites” if the item contains more than 10 parts per million (ppm) sulfites (the lowest reliably detectable amount in foods).

Wines Ranked by Sugar Content

| | Sugar (g/5 oz) | Health Score |
|---|-------------------|-----------------|
| Yellow Tail Merlot 2002 | 1.0 | 79 |
| Corbett Canyon Chardonnay 2002 | 1.0 | 66 |
| Charles Shaw Chardonnay 2002 | 1.0 | 67 |
| Charles Shaw Merlot 2002 | 1.0 | 75 |
| Yellow Tail Chardonnay 2002 | 1.0 | 69 |
| Corbett Canyon Merlot 2001 | 0.9 | 78 |
| Yellow Tail Cabernet 2002 | 0.7 | 77 |
| Black Swan Vineyards Chardonnay 2002 | 0.7 | 70 |
| Charles Shaw Cabernet 2001 | 0.7 | 74 |
| Black Swan Vineyards Merlot 2002 | 0.4 | 84 |
| Bonterra Chardonnay 2001 | 0.4 | 70 |
| Frey Zinfandel 2001 | 0.1 | 81 |
| Rubicon Niebaum-Coppola 1999 | 0.1 | 82 |
| Errazuriz Don Maximiano 1999 | 0.1 | 92 |
| Primus Veramonte Carmenere Merlot Cabernet 2000 | 0.1 | 91 |
| Dominus Napa Valley 1999 | 0.1 | 93 |
| Montes Alpha Cabernet 2000 | 0.1 | 89 |
| Black Swan Cabernet 2002 | 0.1 | 81 |
| Opus One Red Wine 1999 | 0.1 | 90 |
| Beringer Private Reserve Cabernet 1996 | 0.1 | 83 |
| Bonterra Cabernet 1999 | 0.1 | 80 |
| Don Melchor Cabernet Sauvignon 1998 | 0.1 | 88 |
| Antinori Tignanello 1998 | 0.1 | 91 |
| Silver Oak Alexander Valley Cabernet 1999 | 0.1 | 81 |
| Badger Mountain Organic Merlot 2000 | 0.1 | 96 |
| Chateau Haut-Brion 1999 | 0.1 | 92 |
| Grand Vin De Chateau Latour 1999 | 0.1 | 93 |
| Chateau Lafite Rothschild 1999 | 0.1 | 86 |
| Chateau Margaux 1999 | 0.1 | 87 |
| Mouton Rothschild Pauillac 1999 | 0.1 | 89 |

While there is no single component that can serve as a general indicator of the overall quality of a label, sugar level comes closest. There are two reasons for high sugar content. Either the fermentation process is prematurely halted before all the sugar is converted, or sweet unfermented grape juice is added to the fermented wine.

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RESVERATROL *cont. from pg. 7*

as soon as you open the bottle—both the alcohol and low oxygen environment of wine production tend to keep the resveratrol from going off before then. Vintners can also use sulfites (and often do) or, as in the case of the sulfite-free *Badger Mountain*, they use tanks sized exactly to the given content, in order to leave no room for air, or they pump in a layer of gas on top to exclude air.

The same principle can be used—and has been for centuries—on open bottles of wine, to keep the resveratrol, and other components, from oxidizing, or “going off.” In Italy, for example, old timers have been known to put a layer of olive oil on the wine surface in an open bottle. Wine only oxidizes around the circumference of the bottle. So other techniques involve “shrinking” the exposed circumference by adding glass beads to the bottle, which raises the wine up into the neck, or by decanting the opened wine into smaller containers with smaller surface areas. The active resveratrol, left alone, will go off somewhere within 24 to 48 hours.

In order to match the amounts of resveratrol that Dr. Sinclair gave his yeast at Harvard, a human would have to drink red wine three times a day. That level is not unheard of in France where, despite a diet generally higher in cholesterol, the rate of heart disease is lower than in the U.S., which some researchers attribute, in part, to higher wine consumption rates.

While it is still a long way off before resveratrol will be tested on humans, the scientists themselves, including Sinclair, are encouraged enough by the findings that they are drinking more red wine.¹⁰ “One glass of red wine a day is a good recommendation. That’s what I do now,” Dr. Sinclair told Reuters news agency. “Not many people know about it yet,” he said, “but those who do almost invariably changed their drinking habits, that is, they drink more red wine.”¹¹

1 Barry D. Gehm, et al, *Proceedings of the National Academy of Sciences*, Dec. 9, 1997

2 Carol Cruzan Morton, *Molecules Discovered that Extend Life in Yeast, Human Cells; Group of Compounds Found in Red Wine, Vegetables Simulate Benefit of Low-Calorie Diet*, Harvard Medical School Focus, Aug. 29, 2003, at http://focus.hms.harvard.edu/2003/Aug29_2003/longevity.html

3 Natasha Hughes, *Sardinian wine may hold key to longevity*, Oct 15, 2002, Decanter.com

4 Harvard Medical School News Release, May 24, 2002, *New Molecular Model Increases Longevity and Could Allow You to Eat Cake, Too*

5 Helen R. Pilcher, *Red wine ingredient makes yeast live longer*, Nature news service, August 26, 2003

6 Carol Cruzan Morton, *Molecules Discovered that Extend Life in Yeast, Human Cells*, Harvard Medical School Focus, Aug. 29, 2003, at http://focus.hms.harvard.edu/2003/Aug29_2003/longevity.html

7 Harvard Medical School News Release, May 24, 2002

8 Gary Taubes, *The Famine of Youth*, *Scientific American*, June, 2000 at www.jerrymondo.tripod.com/health/id5.html

9 Harvard Medical School News Release, May 24, 2002

10 Nicholas Wade, *Red wine may really be a fountain of youth*, New York Times, August 26, 2003

11 Sinclair has a financial stake in a new effort to develop sirtuin-related products with BIOMOL Research Laboratories of Plymouth Meeting, Pa., who are also involved in the research. Rick Weiss, *Enzymes Found to Delay Aging Process, Discovery Could Lead to Drugs to Extend Life Span*, Washington Post, August 25, 2003

Wines Ranked by Resveratrol Levels

| | Resveratrol (mg/5 oz) | Health Score |
|---|-----------------------|--------------|
| Chateau Haut-Brion 1999 | 0.520 | 92 |
| Black Swan Vineyards Merlot 2002 | 0.454 | 84 |
| Badger Mountain Organic Merlot 2000 | 0.433 | 96 |
| Chateau Margaux 1999 | 0.321 | 87 |
| Primus Veramonte Merlot Cabernet 2000 | 0.301 | 91 |
| Yellow Tail Merlot 2002 | 0.262 | 79 |
| Mouton Rothschild Pauillac 1999 | 0.246 | 89 |
| Chateau Lafite Rothschild 1999 | 0.232 | 86 |
| Antinori Tignanello 1998 | 0.209 | 91 |
| Grand Vin De Chateau Latour 1999 | 0.189 | 93 |
| Black Swan Cabernet 2002 | 0.177 | 81 |
| Don Melchor Cabernet 1998 | 0.141 | 88 |
| Dominus Napa Valley 1999 | 0.137 | 93 |
| Errazuriz Don Maximiano 1999 | 0.0925 | 92 |
| Yellow Tail Cabernet 2002 | 0.0914 | 77 |
| Corbett Canyon Merlot 2001 | 0.0855 | 78 |
| Bonterra Cabernet 1999 | 0.0746 | 80 |
| Opus One Red Wine 1999 | 0.0576 | 90 |
| Frey Zinfandel 2001 | 0.0497 | 81 |
| Rubicon Niebaum-Coppola 1999 | 0.0390 | 82 |
| Silver Oak Alexander Valley Cabernet 1999 | 0.0387 | 81 |
| Black Swan Vineyards Chardonnay 2002 | 0.0387 | 70 |
| Montes Alpha Cabernet 2000 | 0.0354 | 89 |
| Charles Shaw Merlot 2002 | 0.0226 | 75 |
| Yellow Tail Chardonnay 2002 | 0.0210 | 69 |
| Beringer Private Reserve Cabernet 1996 | 0.0196 | 83 |
| Charles Shaw Chardonnay 2002 | 0.0190 | 67 |
| Charles Shaw Cabernet 2001 | 0.0121 | 74 |
| Bonterra Chardonnay 2001 | 0.0112 | 70 |
| Corbett Canyon Chardonnay 2002 | 0.00936 | 66 |

Resveratrol is a polyphenol found in fruits and vegetables, such as in red grapes, mulberries, raspberries, and peanuts, and protects them against fungal infections. It has been shown previously to have a number of potentially beneficial properties, including antioxidant, anticoagulant, anti-inflammatory and anti-cancer effects. Resveratrol stimulates the production of sirtuin enzymes, which delay cell death and allow cells to survive damage. They exist in all living organisms, from yeast to human beings, leading to speculation that this polyphenol could play an important role in prolonging human life. While resveratrol is found in red wine due to the fermentation process, it is negligible in white wine, where processing removes it.

Wines Ranked by Total Polyphenols

| | Polyphenols (mg/5 oz) | Health Score |
|---|--------------------------|-----------------|
| Dominus Napa Valley 1999 | 395 | 93 |
| Errazuriz Don Maximiano 1999 | 395 | 92 |
| Montes Alpha Cabernet 2000 | 387 | 89 |
| Badger Mountain Organic Merlot 2000 | 386 | 96 |
| Opus One Red Wine 1999 | 384 | 90 |
| Grand Vin De Chateau Latour 1999 | 376 | 93 |
| Antinori Tignanello 1998 | 366 | 91 |
| Mouton Rothschild Pauillac 1999 | 361 | 89 |
| Don Melchor Cabernet 1998 | 359 | 88 |
| Primus Veramonte Merlot Cabernet 2000 | 354 | 91 |
| Chateau Haut-Brion 1999 | 351 | 92 |
| Chateau Lafite Rothschild 1999 | 343 | 86 |
| Chateau Margaux 1999 | 337 | 87 |
| Silver Oak Alexander Valley Cabernet 1999 | 337 | 81 |
| Rubicon Niebaum-Coppola 1999 | 336 | 82 |
| Beringer Private Reserve Cabernet 1996 | 334 | 83 |
| Bonterra Cabernet Sauvignon 1999 | 312 | 80 |
| Corbett Canyon Merlot 2001 | 310 | 78 |
| Yellow Tail Merlot 2002 | 278 | 79 |
| Yellow Tail Cabernet 2002 | 262 | 77 |
| Black Swan Vineyards Merlot 2002 | 258 | 84 |
| Black Swan Cabernet 2002 | 255 | 81 |
| Frey Zinfandel 2001 | 242 | 81 |
| Charles Shaw Merlot 2002 | 242 | 75 |
| Charles Shaw Cabernet 2001 | 233 | 74 |
| Yellow Tail Chardonnay 2002 | 46.9 | 69 |
| Black Swan Vineyards Chardonnay 2002 | 45.5 | 70 |
| Charles Shaw Chardonnay 2002 | 34.3 | 67 |
| Bonterra Chardonnay 2001 | 34.0 | 70 |
| Corbett Canyon Chardonnay 2002 | 26.9 | 66 |

Polyphenols (polys) are antioxidants that inhibit oxidation or reactions promoted by oxygen and are found in a variety of fruits and vegetables, including red wine. Polys neutralize cell-damaging compounds in the body called "free radicals." By blocking the action of free radicals, they can help prevent heart disease, cancer, and various other conditions associated with aging. In vitro (test tube) experiments show that wine polyphenols block the production of chemicals that cause blood vessels to constrict and plaque to accumulate in them.

OLD GUARD *cont. from pg. 12*

chain reaction that will disrupt a living cell. Free radical damage has been implicated in a laundry list of diseases from arteriosclerosis, heart attack and stroke to rheumatoid arthritis to cataracts, Parkinson's Disease and Alzheimer's dementia, "and a variety of related disorders," one researcher wrote, "perhaps even including the factors underlying the aging process itself."⁷ Many polyphenols, including resveratrol and others found in wine, act as antioxidant agents—molecules or groups of molecules that come to the rescue by donating one of their own electrons, which neutralizes the free radical. Because antioxidants are stable either way, they stop the chain reaction. No essential protein molecules are disturbed.⁸

"The oxidation that occurs in the human body is identical to the way in which rust is formed in metal, so it is not unreasonable to say that we will all eventually rust to death if given the opportunity," writes Dr. Michael Lam, in the *Journal of Anti-Aging Research*. We can decrease that opportunity by upping our intake of polyphenols.

All four of the Chileans tested in this edition, as well as two of the French first growths, made the top 10 list for total polyphenols. The *Dominus Napa Valley 1999*, which has the most polyphenols of any wine tested, and the *Opus One 1999* made a strong showing against the Chileans and they dominated the French, which all scored below them in this category.

As with overall health value, a lot of the high polyphenol wines we examined cost more than most people want to pay for a dinner wine. There are exceptions, however. The *Montes Alpha Cabernet 2000*, at about \$17 a bottle. The biggest upstart is the *Badger Mountain Organic Merlot 2000*, which not only trounced all comers, winning the only "Excellent" that we have ever awarded, but you could hardly ask for a better dollar value for health benefit. The average price is \$15 a bottle. You could find a cheaper wine, but by comparison *Badger Mountain* is a shining pauper among princes. [See related story.] The average price of the top-scoring five wines in the sample, including *Badger Mountain*, is \$128 per bottle, or about nine times the price of the *Badger*. And speaking of high-health, low-price wines, check out *Black Swan Vineyards Merlot 2002*, which beat out the \$115 *Beringer Private Reserve Cabernet Sauvignon 1996* and tied the *Concha y Toro Merlot*. The *Concha* topped the list of healthy wines in the June 03 sample.⁹ And it's only half the price of the *Badger*.

¹ *The World Atlas of Wine*, Jancis Robinson and Hugh Johnson, p. 85. See also the work of Dr. Gerard Seguin of the University of Bordeaux

² *Lancet* 1994, 344: 1719-1723

³ *Novartis Found Symp* 1998, 216: 208-217

⁴ *Stroke: Journal of the American Heart Association* 1998, 29: 2467-2472

⁵ Michael Lam, MD, MPH and Maria Sulindro, MD, *Calories that Count*, *Journal of Anti-Aging Research*

⁶ Attributed to Roy L. Walford by Gary Taubes, *The Famine of Youth*, *Scientific American*, June 2000

⁷ Davies, Kelvin, J.A. *Free Radicals and Oxidative Stress: Environments, Drugs and Food Additives*, 1995

⁸ *New York Academy of Sciences, Conference Report*, April 26-29, 2001

⁹ See *Truth in Wine*, Summer 2003 for a comprehensive look

Two Wine Glasses Fight Lone Cigarette

Greek researchers have found that red wine can alleviate some of the danger of smoking one cigarette while drinking the wine. The "harmful effect of one cigarette was suspended" when subjects at University Hospital in Athens drank two 250 ml. glasses of red wine while smoking, the two doctors told the European Society of Cardiology in Vienna late last summer.

The Greek researchers said that intensive smoking one cigarette damaged blood vessel function for up to an hour afterwards, but an intake of polyphenols at the same time counteracted that effect. It's the polyphenols in red wine, not the alcohol, that are credited with the effect. A number of studies now show that red wine polyphenols block production of the chemical *endothelin-1*, which has been implicated in heart diseases because it causes blood vessels to constrict. The British cardiologist Dr. William McCrea, of the Great Western Hospital in Swindon, regularly prescribes two glasses of Chilean Cabernet Sauvignon a day to cardiac patients because it reduces the risk of a second heart attack, he says.

The research on Greek wine and cigarettes took no account of other ill-effects of smoking, including its role in cancer. The researchers pointed out there is no proof that regular consumption of red wine could possibly attenuate the harmful effects of chronic smoking.

Adam Lechmere, [and agencies] Red wine 'suspends' dangers of smoking, Sept. 1, 2003, Decanter.com

Is Anti-Bacterial Kitchen Spray the Next Wine Product?

While white wine usually is considered nice with a meal, it could also be good protection from food poisoning. A study by scientists at Oregon State University shows that wine grapes contain anti-bacterial properties that kill the germs responsible for common types of food poisoning, such as *E. coli* and *salmonella*, as well as *Staphylococcus aureus*, *Pseudomonas aeruginosa*, and *Klebsiella pneumoniae*, all of which can contaminate food and cause illness.

These anti-bacterial properties also mean that wine could be the perfect ingredient for a natural, environmentally safe, anti-bacterial spray for the kitchen. "That appeals to people concerned about the environment, and also to people who are concerned about their exposure to chemical residues," said Mark Daeschel, an Oregon State University food scientist and microbial safety specialist who is perfecting the spray with colleagues.

Daeschel speculates that vineyards may be interested because a considerable amount of waste wine—those batches that do not meet quality and flavor standards—is rou-

tinely discarded and could be used to make the spray. White wine is best, he said, because red wine might stain surfaces. Enough salt is added to the spray to make it undrinkable.

Theresa Novak, Oregon State University scientist develops natural disinfectant from wine, May 28, 2002

Red Wine Substance Helps Lung Disease

You may breathe easier if you're a red wine drinker. According to a study by British doctors, the reason is resveratrol, the compound found naturally in red wine.

With numerous studies relating red wine consumption to lower rates of heart disease, the British researchers wanted to explore the effects of the substance on lung disease such as chronic bronchitis and emphysema. And their findings? Although resveratrol could



not reverse the damage already experienced in the lungs, it could reduce the level of harmful chemicals in the lungs that cause the diseases, and help it from getting worse.

The researchers took lung fluid samples from 15 patients suffering from lung disease and added resveratrol. They found production of *interleukin 8*, a chemical that causes inflammation of the lungs, was cut by 88 percent.

Although drinking red wine may not contain enough resveratrol to stop chronic lung disease, the substance could be administered by inhalers.

"Inhibition by red wine extract, resveratrol, of cytokine release by alveolar macrophages in COPD." SV Culpitt, DF Rogers, PS Fenwick, P Shah, C DeMatos, REK Russell, BJ Barnes, LE Donnelly, Thorax, November 2003, Vol. 58, No. 11

Wine Drinking May Help Fertility

In a recent study on wine consumption and fertility, the Danish Epidemiology Science Center concluded that women who regularly drink wine are able to conceive faster than abstainers. The researchers studied data gathered from nearly 30,000 pregnant women who planned their pregnancies, representing about 35

percent of pregnant women in Denmark during the study period, 1997 to 2000.

The results? Compared to abstainers, 29 percent of the wine drinking women were more likely to become pregnant within a year or less. The findings applied to women drinking wine at all levels—from a half-glass to as much as eight or more glasses of wine per week. Those who consumed other alcoholic beverages did not score as well, and abstainers fell behind alcoholic-beverage consumers, regardless of the amount or type of alcohol used.

The study didn't answer the main question, however: Why does wine drinking increase fertility?

A theory advanced by one of the researchers is that wine drinkers have an advantage because "smaller amounts of alcohol may have a positive impact on the female reproductive system, perhaps by providing some stress control." Other experts speculate that drinking wine makes people more relaxed and amorous, which leads to more frequent love making. Yet others point to the generally more healthy lifestyle of wine drinkers.

The report is part of a major, long-term study of 100,000 pregnant Danish women that is examining what effect the fetal environment has on a child's health over time. And the results came as a surprise to the researchers, who expected to corroborate an earlier study that found alcoholic-beverage consumption makes it more difficult for women to get pregnant. They concluded that the difference in findings were due to a smaller sample for the earlier study.

Because the time of conception is not always known, experts all stress that women should not change their drinking habits based on these findings because of the well-known dangers of alcohol to the fetus.

Danish Epidemiology Science Center, "Intake of wine, beer and spirits and waiting time to pregnancy," 2003, available at www.humrep.oupjournals.org.

Carol Emert, Study links wine with fertility, San Francisco Chronicle, Sept. 11, 2003

Spanish Law Says "Yes" to Wine

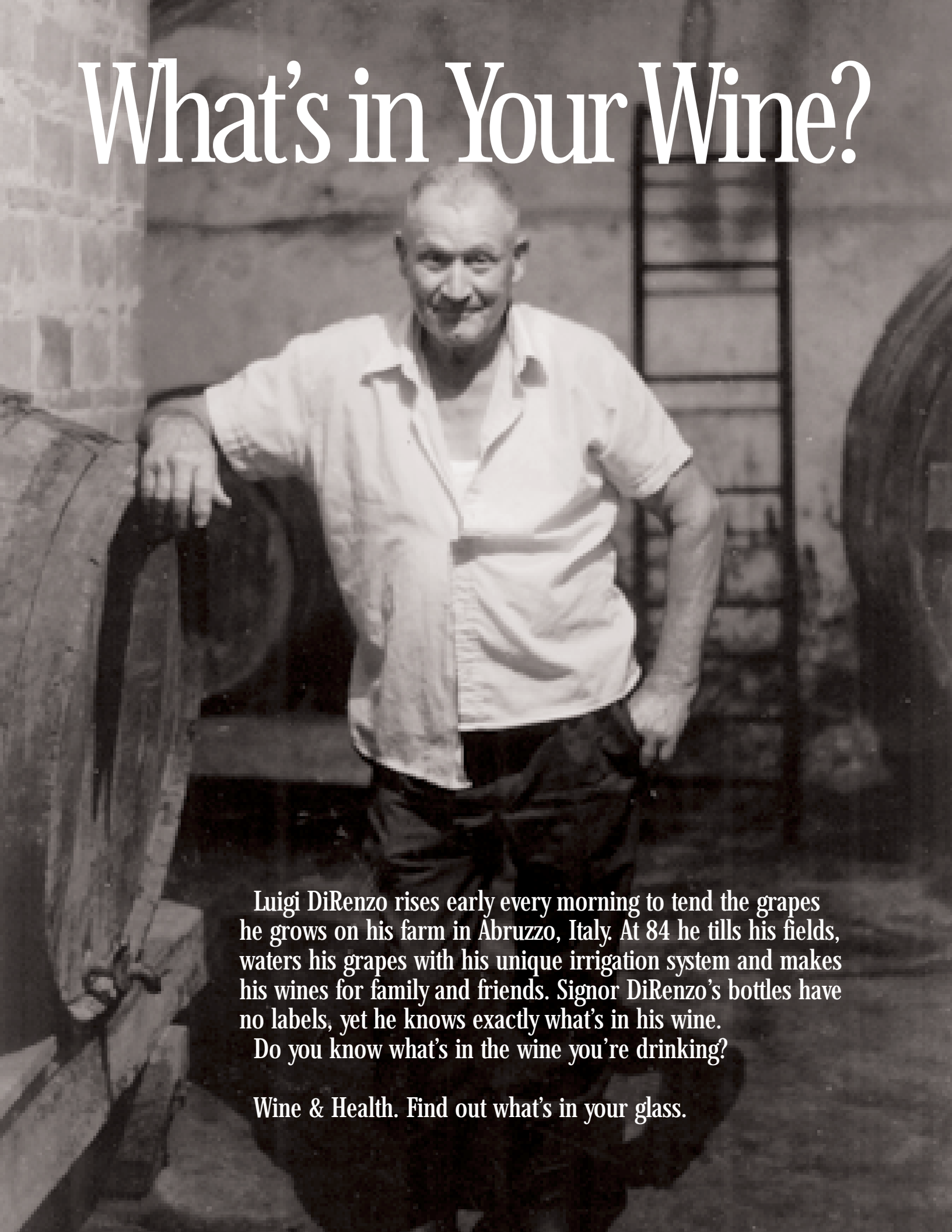
Drinking wine recently has been validated by the Spanish Government as part of a healthy diet. Under a new law, responsible consumption of wine will be promoted as an important part of a Mediterranean diet, typically high in meat and cheese. And the Spanish Government will pay for regional and national information campaigns to let everyone know. This new law also encourages growers and producers to use environmentally friendly and sustainable farming methods.

Barry Bros. & Rudd, Wine Knowledge, Spanish Law Says Yes to Wine; and Wine News, New Spanish Law—Wine Is Good For You, Oct. 3, 2003 @ www.bbr.com/GB/db/news-item/

Composite Score Sheet

| | Alcohol % vol. | Carbs g/5 oz | Calories Kcal/5oz | Sugar g/5 oz | Sulfites ppm | Sulfites g/5oz | Polys mg/5oz | Resver mg/5oz | Approx. Price per 750 ml | Health Score |
|--|----------------|--------------|-------------------|--------------|--------------|----------------|--------------|---------------|--------------------------|--------------|
| Badger Mountain Organic Merlot 2000 | 13.0 | 2.4 | 114.9 | 0.1 | 8 | 0.00115 | 386 | 0.433 | \$15.00 | 96 |
| Dominus Napa Valley 1999 | 13.0 | 2.4 | 124.7 | 0.1 | 134 | 0.0193 | 395 | 0.137 | \$115.00 | 93 |
| Grand Vin De Chateau Latour 1999 | 12.8 | 2.2 | 111.6 | 0.1 | 71.3 | 0.0103 | 376 | 0.189 | \$225.00 | 93 |
| Errazuriz Don Maximiano 1999 | 14.0 | 3.0 | 126.1 | 0.1 | 97.2 | 0.0140 | 395 | 0.0925 | \$60.00 | 92 |
| Chateau Haut-Brion 1999 | 13.2 | 2.2 | 114.6 | 0.1 | 156 | 0.0225 | 351 | 0.520 | \$225.00 | 92 |
| Antinori Tignanello 1998 | 13.1 | 2.4 | 115.8 | 0.1 | 79.6 | 0.0115 | 366 | 0.209 | \$80.00 | 91 |
| Primus Veramonte Carmener Merlot Cabernet Sauvignon 2000 | 14.3 | 2.4 | 125.9 | 0.1 | 36.2 | 0.00521 | 354 | 0.301 | \$15.99 | 91 |
| Opus One Red Wine 1999 | 13.6 | 2.4 | 119.2 | 0.1 | 101 | 0.0145 | 384 | 0.0576 | \$150.00 | 90 |
| Montes Alpha Cabernet 2000 | 14.0 | 2.7 | 123.4 | 0.1 | 121 | 0.0174 | 387 | 0.0354 | \$16.99 | 89 |
| Mouton Rothschild Pauillac 1999 | 12.0 | 2.3 | 105.7 | 0.1 | 141 | 0.0203 | 361 | 0.246 | \$160.00 | 89 |
| Don Melchor Cabernet Sauvignon 1998 | 13.1 | 2.7 | 116.5 | 0.1 | 59.6 | 0.00858 | 359 | 0.141 | \$50.00 | 88 |
| Chateau Margaux 1999 | 12.7 | 2.0 | 110.0 | 0.1 | 135 | 0.0194 | 337 | 0.321 | \$200.00 | 87 |
| Chateau Lafite Rothschild 1999 | 12.6 | 2.3 | 110.2 | 0.1 | 132 | 0.0190 | 343 | 0.232 | \$200.00 | 86 |
| Black Swan Vineyards Merlot 2002 | 13.3 | 2.7 | 117.5 | 0.4 | 104 | 0.0150 | 258 | 0.454 | \$6.99 | 84 |
| Beringer Private Reserve Cabernet Sauvignon 1996 | 13.6 | 2.4 | 119.2 | 0.1 | 67.7 | 0.00975 | 334 | 0.0196 | \$115.00 | 83 |
| Rubicon Niebaum-Coppola 1999 | 14.6 | 2.6 | 128.3 | 0.1 | 101 | 0.0145 | 336 | 0.0390 | \$100.00 | 82 |
| Silver Oak Alexander Valley Cabernet Sauvignon 1999 | 13.1 | 2.6 | 115.3 | 0.1 | 142 | 0.0204 | 337 | 0.0387 | \$80.00 | 81 |
| Black Swan Cabernet Sauvignon 2002 | 13.6 | 3.0 | 121.5 | 0.1 | 69.6 | 0.0100 | 255 | 0.177 | \$6.99 | 81 |
| Frey Zinfandel 2001 | 15.6 | 2.0 | 132.9 | 0.1 | 8 | 0.00115 | 242 | 0.0497 | \$13.00 | 81 |
| Bonterra Cabernet Sauvignon 1999 | 13.5 | 2.4 | 118.7 | 0.1 | 109 | 0.0157 | 312 | 0.0746 | \$17.00 | 80 |
| Yellow Tail Merlot 2002 | 13.7 | 3.5 | 123.3 | 1.0 | 83.7 | 0.0121 | 278 | 0.262 | \$6.99 | 79 |
| Corbett Canyon Merlot 2001 | 12.5 | 3.2 | 116.8 | 0.9 | 27.3 | 0.00393 | 310 | 0.0855 | \$8.99 | 78 |
| Yellow Tail Cabernet Sauvignon 2002 | 13.6 | 3.2 | 122.1 | 0.7 | 44.9 | 0.00647 | 262 | 0.0914 | \$6.99 | 77 |
| Charles Shaw Merlot 2002 | 13.2 | 3.2 | 118.8 | 1.0 | 34.6 | 0.00498 | 242 | 0.0226 | \$3.50 | 75 |
| Charles Shaw Cabernet Sauvignon 2001 | 12.1 | 2.9 | 109.6 | 0.7 | 55.7 | 0.00802 | 233 | 0.0121 | \$3.50 | 74 |
| Black Swan Vineyards Chardonnay 2002 | 13.1 | 2.4 | 116.4 | 0.7 | 182 | 0.0262 | 45.5 | 0.0387 | \$8.99 | 70 |
| Bonterra Chardonnay 2001 | 13.5 | 2.2 | 117.2 | 0.4 | 87.5 | 0.0126 | 34.0 | 0.0112 | \$15.00 | 70 |
| Yellow Tail Chardonnay 2002 | 13.0 | 2.6 | 115.5 | 1.0 | 166 | 0.0239 | 46.9 | 0.0210 | \$6.99 | 69 |
| Charles Shaw Chardonnay 2002 | 13.4 | 2.9 | 119.1 | 1.0 | 145 | 0.0209 | 34.3 | 0.0190 | \$3.50 | 67 |
| Corbett Canyon Chardonnay 2002 | 13.5 | 2.6 | 119.5 | 1.0 | 101 | 0.0145 | 26.9 | 0.00936 | \$4.00 | 66 |

What's in Your Wine?



Luigi DiRenzo rises early every morning to tend the grapes he grows on his farm in Abruzzo, Italy. At 84 he tills his fields, waters his grapes with his unique irrigation system and makes his wines for family and friends. Signor DiRenzo's bottles have no labels, yet he knows exactly what's in his wine.

Do you know what's in the wine you're drinking?

Wine & Health. Find out what's in your glass.