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The Health Benefits of Red Wine

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The Health Benefits of Consuming Red Wine

By

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Executive Summary:

There is an age old argument of what to drink at the end of a long day. Some prefer beer, some liquor, others wine. What most don't realize is red wine is the healthiest drink for consumers. Throughout this paper, I will take you on a journey about red wine, first starting with its history, then the facts about why it is healthy and comparisons to other alcoholic drinks, and ending up with the overall assertion that red wine is the healthiest of the alcoholic beverages. Disclaimer, this paper is not about why someone should drink more and I am in no way condoning heavy alcohol consumption. But rather, I hope to prove that drinking 1-2 glasses a day of red wine can positively impact the consumer's health.

I first became interested in the health benefits of red wine when I studied abroad in Bilbao, Spain. In Spain and in Europe in general, drinking wine is a cultural norm. Below is a quote from my director in Spain, Ibon Zamanillo, about why Spaniards drink wine and its cultural impact:

"In our culture, wine is a strong part of the social performance. It is present in important events and in small and informal gatherings. When you go out to socialize you invite somebody for a wine, although you may end up having something different. It is a vehicle for social relationships. However been drunk is not well seen. Wine should be something to enjoy, not just a way to get drunk. There are a lot of rituals around red wine, not only the sampling but visiting vineyards or locating a new and good and unknown type of red wine. The red wine has always been seen as more serious whereas the white one is "lighter", the type of wine that women would prefer. (sorry for the sexist comment, I guess that it goes along with the wine culture which is quite sexist).The latin proverb says "in vino veritas" (the truth is found in the wine) and in many cases the wine provides an appropriate environment to develop and build friendship and business. I am not so much a wine person, but, especially in the latest years, I see that wine has become a matter of prestige and social recognition."

While in Spain, I found the wine culture to be very interesting and I found it amusing that wine was cheaper than water. After visiting vineyards and becoming accustomed to drinking red wine with every meal and noticing some differences in my overall health, I decided to research it for my thesis topic.

In this paper, I hope to prove to people and convince people that drinking more red wine can positively impact their overall health. With the survey I administered, I hoped to confirm my hypothesis that if informed about the health benefits, people will agree to drink more red wine. I administered the survey to about sixty people and after analyzing the results, I found that they did indeed prove my hypothesis with over half of the recipients answering that "yes-they would be more inclined to drink red wine" after being properly informed, by a credible source, of its various health benefits. Red wine contains a polyphenol called resveratrol that has various cardiovascular benefits as well as other helpful attributes. Red wine is also made using the skin of the grapes which adds vital antioxidants and vitamins into the human system.

Again, to be clear, I am not advocating for people to drink more alcohol. Doctors warn that excessive alcohol usage can lead to serious health problems. Instead, I am proving that when choosing to drink, it would be in a person's best interest to choose red wine because it is the healthiest alcohol for someone to consume.

So remember, after a long tiring day, a glass of red wine might just be what the doctor ordered.

Intro:

Red wine is the healthiest alcohol on the market for consumers. Because of its fermentation and production processes, red wine contains significantly more antioxidants, vitamins, and polyphenols than most other available alcohols. The key component in red wine is resveratrol. Resveratrol is a polyphenol that aids various bodily systems. Through available research and numerous conducted studies, resveratrol has been proven to improve the cardiovascular system and it has an impact on decreasing the risks for obesity and type 2 diabetes. Resveratrol has numerous other health benefits that will be explained in further detail in the "Health Benefits" section of the paper. In order to prove the hypothesis that "people will drink more red wine if properly informed of its available benefits" further research had to be done. A survey was conducted that asked various questions regarding current drinking habits and preferences along with prior knowledge about red wine. The last two questions aimed to directly prove the hypothesis by first informing the respondent of a few of the health effects of red wine and then asking if they would be more willing to drink red wine after knowing how beneficial it is for the body. This paper will systematically inform the reader about the history of red wine, the main types of red grapes used in the fermentation process, the health benefits of red wine, the best types of red wine for consumption, as well as an analysis of the survey results. The point is to convince the reader to drink red wine versus other forms of alcohol.

History of Red Wine:

The earliest production of red wine was in 6000 BC in Georgia (the region between Europe and Asia) and in Iran. The way to cultivate red wine was first laid out by the Egyptians and was depicted in their temple drawings. First, the grapes were harvested using a curved knife. They were then put into wicker baskets and then were placed in vats of acacia wood and trodden on until liquefied. It is actually believed that red wine was discovered by accident. Farmers were storing grapes and may have left residual grapes in their containers, thus leaving the grapes to ferment, producing wine. The first known vineyard was discovered around 4100 B.C. in a cave in Armenia (Coffey, 2011). Red wine can be divided into six main varieties of red grape varieties: cabernet sauvignon, chianti, merlot, pinot noir, sangiovese, and zinfandel.

Cabernet Sauvignon-This is the youngest of the red wines with it being less than 600 years old. Sauvignon grapes were first mentioned in the 18th century and they are French for "hardy vine". This is a popular vine that is mainly grown in Australia and it yields a rich, ripe flavor.

Flavors: bell pepper, green olive, herb, cassis, black cherry

Chianti- This is the best known of the Italian wines and it dates back to before the 15th century. The main type of grape used is the sangiovese grape which yields a luscious wine with berry fruitiness.

Merlot- This is one of the oldest wines, dating back to first century France. It is mostly grown in the Bordeaux region of France and is difficult to cultivate because of its large size and thin skin. It is often called the Chardonnay of reds because it is "easy to

pronounce, easy to like, agreeable, and versatile" (Gregutt). It ripens well and creates plump and wonderful wines that can age for a decade or more.

Flavors: watermelon, strawberry, cherry, plum

Pinot Noir- This wine dates back to the Romans and the noble Pinot Family. It was used by the Catholic monks in sacraments and it has a rich full bodied flavor with a soft velvety texture. This wine is the "prettiest, sexiest, most demanding, and least predictable of all" (Gregutt).

Flavors: tomato leaf, beet root, pale cherry, blackberry, cola, plum

Sangiovese- These grapes started to be used in Tuscany in 1722 and they are still grown there today and they are mainly used in the production of chianti wines. It is relatively light in color and firmly acidic.

Flavors: pie cherry, anise, tobacco leaf

Zinfandel- These grapes are the oldest type of grape used and grown in California and they came about in the 1830's. Its ancestry has been traced to Croatia.

Flavors: Raspberry, blackberry, black cherry, raisin, prune

These are the main types of red grapes used to make red wine. There are tons of other red wines out there, but these are the principle ones.

Health Benefits of Red Wine:

When choosing which wine to drink, rarely do people put in a lot of thought to the health benefits of said drink; they tend to choose what they like. Unbeknownst to many, are the multiple health benefits that drinking red wine provides to the consumer. According to recent studies, consuming red wine daily can have a positive impact on people's health. The key benefactor in red wine is the polyphenol Reservatrol. First of all, polyphenol is an antioxidant found in many foods like legumes, honey, grapes, pomegranate, cranberries, cherries, blueberries, and green tea. Polyphenols are also thought to have anti-cancer properties and can help reduce instances of coronary artery disease (Scalbert, 2005).

Polyphenols are a group of chemical substances found in plants and other foods like red grapes. Flavonoids are the most abundant type of polyphenol in a typical diet. Red wines have something in them called tannin. Tannins in red wine contain some flavonoid polyphenols. It was found that in the first years of a red wine, some of the polyphenols help prevent cardiovascular diseases and some cancers.

Flavonoids have polymer chains comprised of proanthocyanidins or OPCs. They are found in many plants, grape seeds, and skin. The effects of these OPCs include neutralizing oxidants and free radicals, depressing blood fat, and inhibiting the destruction of collagen. OPCs have various benefits on venous and capillary disorders like venous insufficiency, capillary fragility, diabetic retinopathy, and macular degeneration. Additionally, studies show that these OPCs can help prevent cardiovascular disease by mitigating the negative effects of high cholesterol on the

heart and blood vessels. These OPCs are the most abundant flavonoid in red wines and are usually contained in up to one gram per liter in red wine.

Phytoalexins are antibiotics produced by plants when under attack by pathogens such as bacteria or fungi and resveratrol is a phytoalexin produced naturally by many plants including vines and red grapes. The health benefits of resveratrol are anti-cancer, anti-inflammatory, blood-sugar lowering, and other various cardiovascular effects. Resveratrol is found in the skin of red grapes and it has been proven that vine grapes grown in cooler climates have higher resveratrol levels than those in warmer climates. The wine varieties that include the most resveratrol are Malbec, sirah, and pinot nior. These are the types of grapes that have the thickest skin and thus have the highest resveratrol levels.

Resveratrol, a polyphenol, has antioxidant properties that have been known to reduce blood clots. Resveratrol is known to have an antithrombotic effect and can expand the blood vessels and it helps aid in circulation, thus decreasing the chance of developing blood clots.

According to the Center for Disease Control, in the United States there are 25.8 million people (8.3% of the population) that have type 2 diabetes. Red wine, studies show, can help reduce blood sugar levels when consumed in moderation and it helps reduce the chance of developing diabetes later on. Lingands (ions and molecules found in certain medicines) are the key benefactor for preventing diabetes. These lingands are extremely abundant in red wine and according to an article in the journal "Food and

Function", studies show that 1-2 glasses of wine have more lingands than common drugs used to help treat type 2 diabetes (Zoechling).

A recent article in the Raleigh *News and Observer* also mentioned the health effects of Resveratrol. The article, entitled "Compound in snacks may help your memory" talked about how resveratrol, found in the skin of red grapes and in peanuts, may help age-related decline in memory (Texas A&M Health Science Center College of Medicine). Ashok Shetty has been studying the potential benefits of resveratrol. Resveratrol, is an antioxidant found in the skin of red grapes, red wine, peanuts, and other berries. This antioxidant has been widely touted for its potential to prevent heart disease. Now, Shetty and his team also believe that it has positive effects on the hippocampus, an area of the brain critical to functions such as memory, learning, and mood. Shetty published a study in January that reported that the treatment with resveratrol had apparent benefits in terms of learning, memory, and mood function and said "the results were striking".

The Journal of Translational Medicine states that red wine, which contains resveratrol, acts on protein breakdown and fights against oxidative stress and cell death which are imperative when it comes to maintaining muscle. Resveratrol also may help muscles grow.

In research conducted by the University of Alberta, researchers have found that resveratrol produces similar health benefits to those we get from exercise. According to Jason Dyck, the lead researcher, the findings from the research will help those who are unable to exercise. Resveratrol was seen to improve physical performance, heart

function, and muscle strength in the same way as they're improved after a gym session and studies have revealed that those who drink a glass of red wine a day are less likely to develop dementia or cancer, that it's good for your heart, anti-ageing, and can help regulate blood sugar.

Red wine is also rich in antioxidants. Antioxidants are "free radical scavengers" meaning that they slow or prevent the oxidation of other molecules by capturing free radicals. Oxidation is a naturally occurring chemical reaction that transfers electrons from a substance to another oxidizing agent. These oxidation reactions produce free radicals which start chain reactions thus damaging cells. Antioxidants found in red grapes and therefore in red wine, terminate these chain reactions by removing the free radical intermediates. They also prevent other oxidation reactions by being oxidized themselves.

In a study conducted by the University of South Carolina School of Medicine researchers discovered that resveratrol may prevent inflammation along with other depressive type behaviors. The study demonstrated that certain amounts of resveratrol (the amount equivalent to six glasses of wine) help treat the symptoms associated with depression and other depressive-like behaviors after they have already developed. Again, resveratrol is a compound found in the skin of red grapes and has other beneficial effects like helping the cardiovascular system and helping prevent diabetes and obesity.

After extensive research, the sources were becoming redundant. Further studies should still be done in order to prove the health benefits of red wine as well as more human trials because most of the studies were done using rats.

Comparisons to other alcohols:

Below, I have compared the benefits of red wine to three other commonly consumed drinks: white wine, beer, and vodka. While all alcoholic drinks, consumed in moderation, possess some beneficial qualities, red wine has the most abundant qualities and is the best choice for the consumer. Compared to these other alcoholic beverages, red wine is the least harmful to consume frequently, has the most amount of available antioxidants, and contains the most beneficial polyphenol (resveratrol) for affecting the human body.

Red vs. White Wine:

While red wine contains resveratrol, white wine contains tyrosol and hydroxytyrosol. These two antioxidants, compared to resveratrol, only provide minor artery blockage, they aren't as strong as resveratrol, and they aren't as rich in antioxidants. While resveratrol is more commonly found in foods like berries, grapes, and legumes, tyrosol and hydroxytyrosol are commonly found in oils, more specifically olive oil. The fermentation process for red wine includes using the grape skins. The grape skin contains the most antioxidants and vitamins which are why red wines are higher in those levels than white wines are. Because the skin isn't used in the fermentation process for white wine, it decreases its overall medical benefit. White wine is also not an adequate source of resveratrol. Facts show that white wines also contain more sugar and calories than red wine.

Red Wine vs. Beer:

Compared to the resveratrol in red wine, beer contains hops, yeast, and grains. These all contain high levels of carbohydrates, a small amount of B vitamins, and potassium. Drinking beer in excess can increase the risk of liver cancer, cirrhosis, alcoholism, obesity, and beer is the drink most prone to binge drinking. There is also a phenomena called the "beer belly". Beer bellies are brought on by consuming too many calories, Beer bellies increase the amount of strain places on the heart and joints. Beer is what's considered to be "liquid calories" meaning it offers no sense of fullness and an average of 150 calories are consumed when drinking one beer. These calories can lead to a multitude of problems with weight, blood pressure, and type two diabetes.

Beer makes you hungry. Overconsumption is prominent when people consume beer and long term use can lead to malnutrition, memory loss, mental problems, heart problems, and increases in blood pressure. The Mayo Clinic has data of occasional reports of asthma being triggered due to beer consumption. Binge drinking beer increases the blood fats called triglycerides and when enlarged, these can lead to arterial blockage. Drinking beer provides the strongest hangovers and beer has been proven to slow down the central nervous system. It is recommended for patients undergoing surgery, they quit drinking beer up to two weeks before the procedure in order to protect against slowing of their CNS.

Red Wine vs. Vodka:

Vodka, much like beer, is commonly abused and is one of the main alcohols that causes addiction. Vodka causes intoxication easily and quickly. Made with potatoes, not grapes, vodka contains little to no antioxidant value and contains no resveratrol. Some health effects from drinking vodka include heart disease, cancer, brain damage, and it can have negative effects on sleep. It has been reported that after having consumed vodka, people lose sleep and often have disturbing dreams or even nightmares. This is due to the fact Vodka affects the part of the brain related to memory and reasoning. It also has a negative effect on bladder control. Finally, Vodka's diuretic properties can result in severe dehydration.
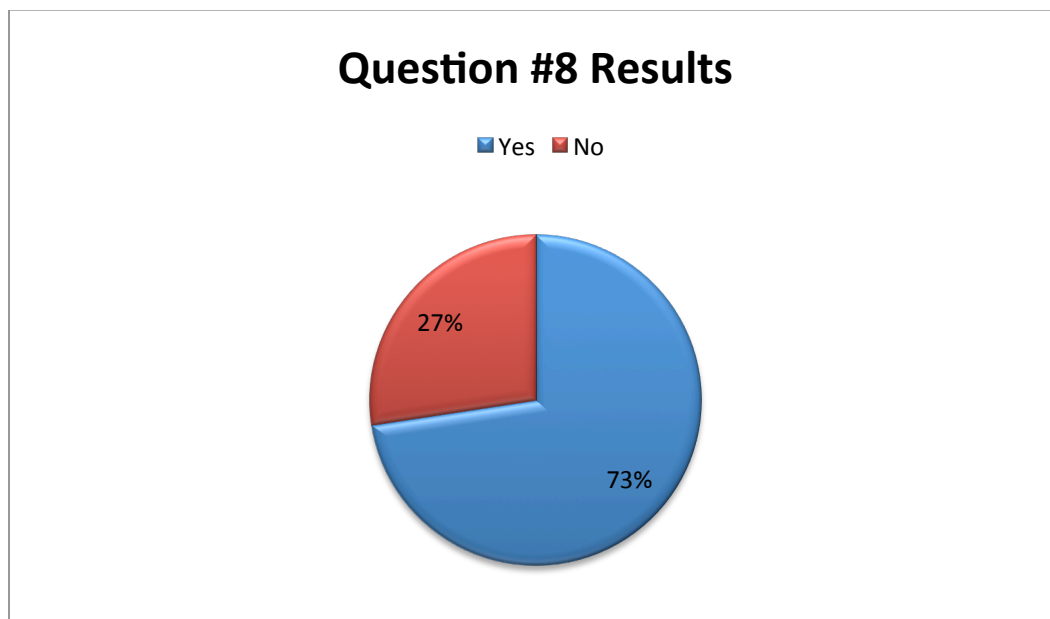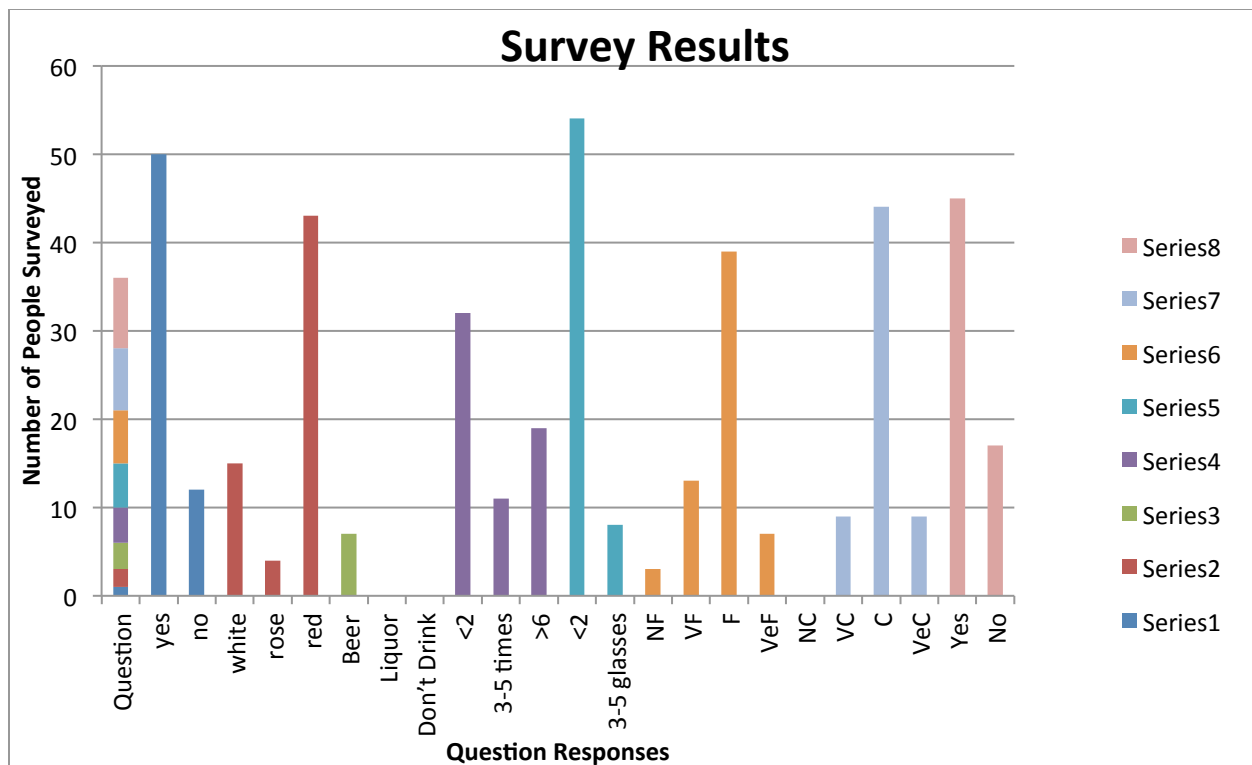
Survey Results:

In order for me to be able to convince people of red wine's health benefits, I needed to first gather information about their drinking habits, drinking preferences, etc. I surveyed a total of 62 subjects ranging in age from 21 years old to 72 years old. I surveyed males, females, college students, business professionals, and people of various ethnic backgrounds. The survey was eight questions total (see example survey in the appendix) and it was distributed via social media (Facebook). All the people surveyed volunteered to participate or I had gotten previous approval to survey them. My overall objective of the survey was to prove that if properly informed of the health benefits, would people be more inclined to drink red wine?

The first question I asked was "do you drink wine?" Of the 62 people surveyed, 50 people answered "yes" and 12 people answered "no". The second question on the survey was "what type of wine do you drink most often?" 15 people answered white wine, 4 people answered rose wine (pink wine), and 43 people answered red wine. The third question was if a person answered "no" to drinking wine and it asked "what do you drink instead?" 7 people answered "beer". The fourth question was "what is your current alcohol consumption per week?" 32 people answered less than two times per week, 11 people answered three to five times per week, and 19 people answered more than six times per week. The fifth question was "how much red wine do you consumer per week?" 54 people answered less than two glasses per week and 8 people answered between three and five glasses per week. The sixth question was "how familiar are you with the health benefits of red wine?" This question was to ascertain how much prior knowledge people had of red wine. 3 people put "not familiar", 13 people put "vaguely

familiar", 39 people put "familiar", and 7 people put "very familiar". The seventh question showed an excerpt from the mayo clinic detailing some health benefits of drinking red wine and then I asked "after reading this excerpt on red wine, how confident are you with this info?" Nobody answered "not confident", 9 people put "vaguely confident", 44 people put "confident", and 9 people put "very confident". The final question asked "after reading this, would you be more inclined to drink red wine?" 45 people answered "yes" and 17 people answered "no".

The general purpose of questions 1-5 was for me to gain insight on drinking habits, how much, how often, and what do people drink. The purpose of question 6 was to see how much prior knowledge of health benefits of red wine people had, 39 people answered they were familiar with the benefits so this could have swayed their answers either positively or negatively based on the quality of their prior knowledge. The purpose of the seventh question was to inform them or remind them of some of the benefits of red wine and the purpose of the final question was to see, if informed, would people be more inclined to drink red wine? Based on the results (45 people put yes, and 17 put no), I can accept my hypothesis that when informed of the health benefits, people will be more likely and willing to drink red wine over other forms of alcohol. There was some room for error in this survey, people's opinions could have already been positively skewed towards red wine if they were already frequent drinkers or already knew of the health benefits.

Survey Results

Number of People Surveyed

Question Responses

Series8
Series7
Series6
Series5
Series4
Series3
Series2
Series1

Question, yes, no, white, rose, red, Beer, Liquor, Don't Drink, <2, 3-5 times, >6, <2, 3-5 glasses, NF, VF, F, VeF, NC, VC, C, VeC, Yes, No

Question #8 Results

Yes   No

27%

73%

Types of Red Wine to Drink:

After having informed the reader of some of the health benefits of red wine, it was deemed necessary to provide the reader with the eight best red wines for consumers. Below are the top eight red wines as ranked by amounts of resveratrol, flavor, antioxidants, and ability to be paired with food.

Shiraz (Syrah)- this type of wine is mainly grown in California, Australia, and in Rhone Valley in France. This type of wine typically has the aroma and flavor of wild black fruit with overtones of black pepper spice and roasted meat. The shiraz variety produces hearty, spicy reds and it gives some of the world's finest, deepest, and darkest red wines with intense flavors and phenomenal longevity. This is one red wine that absolutely must be served at room temperature or warm because of the abundance of flavors. It is best paired with meat such as steak, beef, stews, or wild game.

Merlot- this wine is the "easiest" of the red wines to drink. It has a softness about it that has made it an introducing wine for new red wine drinkers. Merlot is a key part of the Bordeaux blend and it is mainly grown in Italy, Romania, California, Washington State, Chile, Australia, etc. This grape produces a taste similar to that of blackcherry, plums, and other herbal flavors. The texture is round and the merlot type of wine is less tannic or rough than most other types of red wines. Fortunately, this versatile type of red wine can be paired with any food.

Cabernet Sauvignon- this type of red wine is typically accepted as one of the world's best varieties. It undergoes a rigorous oak treatment that causes it to be blended with cabernet franc and merlot. It is planted wherever red wine grapes grow

except in extreme northern fringes such as Germany. It is predominantly grown in places like Australia, Chile, and California. Cabernet Sauvignon is a full bodied wine with a firm and gripping taste when it's younger. This means that at first, it will have a currant taste but will fade away to that of a bell pepper. This type of red wine is best paired with simply prepared red meat.

Malbec- this type of wine was born in the French Bordeaux region but now it is widely grown in Argentina, where it is the most prominent type of red grape. It is also grown in Chile, Australia, and in the cooler regions of California. Malbec is a trickier type of wine because it's taste and characteristics depend greatly on where it is grown and the fermentation process it goes through. Usually it produces a well colored wine that tastes like berries, plums, and spice. This red wine can be paired with all types of meat based meals, foie gras, Mexican, Cajun, and Indian style dishes.

Pinot Noir- this type of red wine is grown in Austria, California, Oregon, and New Zealand. Pinot noir is considered to be the noblest of red wines because it is difficult to grow, rarely blended, and produces no roughness. The taste structure of this wine is delicate and fresh. It tastes of flavors like cherry, strawberry, plum, and it often has aromas that smell like tea-leaf, damp earth, or worn leather. Pinot Noir is best paired with foods like grilled salmon, chicken, lamb, and Japanese dishes.

Zinfandel- this grape is one of the world's most versatile because it makes everything from white to blush to rich and heavy red wine. This grape is only found in California, often has a zesty flavor of berry and pepper, and it's best paired with tomato sauce pasta, pizza, and grilled and barbecued meats.

Sangiovese- this type of wine is produced in Italy's Tuscany region and in parts of California. It typically tastes like fresh plums and berries and is best paired with Italian and Mediterranean style foods.

Barbera- this type of red wine is a classic wine of Italian origin and is now grown widespread in California. It tastes like juicy black cherries and plum fruit and it has a silky texture with and excellent acidity. Barbera red wine is also very versatile and can be paired with many dishes especially those including tomato sauces.

The red wines with the most health benefits are the ones that contain Malbec and Madiran grapes because of their levels of OPCs. In order to be labeled as these specific types of wine, they must contain at least 40% or more resveratrol. The other varieties that are high in resveratrol levels are petite sirah, St. Laurent, and pinot noir.

Conclusion:

Red wine is not only the best wine for consumers, but also the best alcohol overall. Based on the amounts of antioxidants present and the amount of resveratrol in red wine, it is proven to be the healthiest and most beneficial alcohol for consumers. One of the key takeaways and key factors that makes red wine more beneficial than other forms of alcohol, especially white wine, is during its production and fermentation process, the skin of the grape is used. The skin of any fruit is abundant in antioxidants and vitamins, and more often than not, the skin contains the most antioxidants than the actual meat of the fruit. Because red wine is made with the skin of the red grapes, it automatically has more antioxidants, vitamins, and polyphenols than white wine. The main reason red wine is healthy, is because of resveratrol. Resveratrol has an abundance of wonderful health effects ranging from cardiovascular improvement to lowering risk for type 2 diabetes to helping ease depression. Not coincidentally though, most resveratrol is contained in the skin of the red grapes. So if red wine wasn't made using the skin, it most likely wouldn't have nearly as many good attributes as it does.

The main problem with red wine is that consumers aren't aware of its many useful health effects. Stores don't do a good job of advertising it and neither do other forms of advertisements. Even walking into a liquor store and asking a clerk about the health effects of red wine proved useless, seeing as the clerk was not knowledgeable about most of red wine's many benefits. The survey results proved that if properly informed about the health benefits of red wine, consumers are more likely to drink it. Fortunately, enough people already drink red wine because they like it, so even though they may have been unaware of its benefits, they were still doing their bodies some

good. However, some of the survey results showed that people who did not drink red wine would be inclined to drink it after learning about its multiple beneficial health effects.

To reiterate, this paper is not advocating for more alcohol consumption. If anything, it's advocating for proper alcohol consumption. Consuming excessive amounts of any alcohol is extremely detrimental to a person's health. The point of this paper was to show that when choosing to drink, it would be in a person's best interest to choose to drink red wine. At the end of a long day, 1-2 glasses of red wine will help rejuvenate your senses. The abundance of antioxidants and vitamins as well as the resveratrol in red wine, will add something of value to someone's immune system. More research needs to be done to further validate the positive effects of resveratrol on the human body, but there is no doubt that that when choosing something to drink, the consumer should choose red wine because it is the best and healthiest alcohol available for consumption.

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Appendix:

Photo of red wine displays and info (Publix Supermarket)

Survey Example:

Thesis Questionnaire

1. Do you drink wine?   Yes   No

2. (If yes to question 1) What type of wine do you drink most often?

    White   Red   Rose

3. (If no to question 1) What do you drink instead?

    Beer   Liquor   Don't drink

4. What is your current alcohol consumption per week?

    <2xweek   3-5xweek   >6xweek

5. How much red wine do you consume a week?

    >2 glasses   3-5 glasses   6-8 glasses   >9 glasses

6. How familiar are you with the health benefits of red wine?

    Not familiar   Vaguely familiar   Familiar   Very Familiar

7. After reading this excerpt about red wine, how confident are you about this info?

    Antioxidants in red wine called polyphenols help protect the lining of blood vessels in your heart. A polyphenol called resveratrol is one substance in red wine that's gotten attention. Resveratrol be a key ingredient in red wine that helps prevent damage to blood vessels, reduces low-density lipoprotein (LDL) cholesterol (the "bad" cholesterol) and prevents blood clots. -- (The Mayo Clinic)

    Not confident   Vaguely confident   Confident   Very confident

8. After reading this, would you be more inclined to drink red wine?   Yes   No

Thank you for your time!