



Personalized Wine



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Overview

Ever have a mild panic attack when you're presented with a mammoth selection of wine? If you are not a wine connoisseur, you probably had an instance or two when you looked up reviews online or sheepishly asked your server for a recommendation. But crowdsourcing wine ratings are like asking a stranger what type of music or art you'd like. It's a complex beverage with thousands of different kinds, and individual preference varies with culture, geography, personality, and genetics. That's right. Genetics. Wine preferences among people vary vastly based on their unique genetic makeup. The same wine can very much taste differently depending on which version of gene they have.



Quiz to find your favorites

1. Do you take your coffee black or with cream and sugar?

2. Do you enjoy fruity flavors?

3. Do you like drinks with a light and airy consistency or ones that are heavier and more full?

4. Do you enjoy tartness from citrusy fruits or sour candy?

5. Do you prefer milk chocolate or dark chocolate?

Notable Characteristics of Wine

There are over thousands of different types and flavors, but all wine can be described with 5 basic taste characteristics listed below.

- **Acidity:** Acidity in food is sour, tart or zesty. In wine, this is attributable to the level of ripeness of the fruit. As grapes ripen, the acidity level goes down. Acidity feels tart, fresh and tingly.
- **Body:** Body describes the viscosity of the liquid, which is affected by alcohol content. This is like comparing a glass of oil to a glass of water. Light bodied wines tend to lack body and are usually watery and thin with low alcohol content. Medium to Full-bodied wines taste fuller and usually have a higher alcohol level.
- **Tannin:** Tannin is what adds bitterness to wine. This is from the phenolic compounds in skin and seeds of grapes, and has a tendency to have a drying feeling in your mouth.
- **Fruity:** Wine is often distinguished by their main fruit or floral flavor.
- **Sweetness:** Also known as the level of “dryness”, the sweet sensation is due to the sugar content in wine. This can be the sweetness of the fruit, the actual sugar content, or the alcohol itself, since alcohol is a sweet liquid.

Body

Light Body	Medium Body	Full Body
▶ Higher Acidity and (tartness) Less Tannin (bitterness) ▶ Lighter Color ▶ <12.5% ABV ▶ ex: Pinot Noir, Zweigelt, St.Laurent	▶ Medium Acidity (tartness) and Tannin (bitterness) ▶ Medium colored ▶ More viscous than light body ▶ Range of wine is diverse ▶ ex: Merlot, Sangiovese	▶ Higher Tannin (bitterness) and Slightly Lower Acidity (tartness) ▶ Taste lingers longer in the mouth ▶ Highly viscous, extracted, darker in color and opaque. ▶ Generally higher than 13.5% BV ▶ ex: Cabernet Sauvignon, Malbec

Fruity

Types of **white wine** known for fruit flavor :

Moscato
Sauvignon Blanc
Chardonnay
Pinot Grigio
Riseling

Types of **red wine** known for fruit flavor :

Cabernet Sauvignon
Malbec
Pinot Noir
Merlot
Grenache

Wine and Genes



Understanding these 5 tastes allows you to fine tune your sensory abilities and find favorites easily. It allows you to categorize, distinguish and recognize wine tastes. However, even if you don't speak 'sommelier', your genes got you covered when it comes to finding the best drink for you. Taste preferences are partly genetically determined. While most of us can taste and experience those five characteristics, the degree of liking for those tastes inherently varies individually.

Luckily, there are known genetic markers that measure preference for each of those tastes. Your DNA will let you know exactly what type and characteristic of wine your taste buds prefer. With this information, you will never have to guess your favorites or play Russian roulette with wine ever again.

Understanding your results

Phenotype	Gene	Genotype	Your Result
Acidity	<i>PKD1L3</i>	GG	Moderate sour sensitivity.
	<i>MC4R</i>	CT	Moderate preference to sour taste.
Alcohol	<i>ALDH2</i>	AG	Moderate sensitivity to alcohol.
Bitter	<i>TAS2R38</i> (1)	CC	Higher bitter sensitivity than other genotypes.
	<i>TAS2R38</i> (2)	GG	Higher bitter sensitivity than other genotypes.
	<i>TAS2R38</i> (3)	GG	Higher bitter sensitivity than other genotypes.
	<i>TAS2R19</i>	GG	Lower bitter sensitivity than other genotypes.
Fruity	<i>OR5A1</i>	AG	Sensitive to floral note than AA genotype. Less willing to consume the beverage with strong floral note.
Sweet	<i>FTO</i>	TT	Lower sweet sensitivity than other genotypes.
	<i>OR7D4</i> (1)	-	-
	<i>OR7D4</i> (2)	-	-
	<i>SLC2A2</i>	GG	Tend to eat typical amount of sugary food.
	<i>TAS1R3</i> (1)	CC	Moderate sensitive to umami taste.
	<i>TAS1R3</i> (2)	CT	Moderate sweet sensitivity.

Your Sensitivity to Five Characteristics

Wine Characteristics	Sensitivity	Result
Acidity	High	Higher sensitivity to sour taste
Body	Typical	Moderate sensitivity to alcohol
Tannin	Typical	Moderate sensitivity to tannin
Fruity	High	Higher sensitivity to floral note
Sweetness	Low	Lower sensitivity to sweet flavor

※ Generally, genetic factors could contribute about 20 - 30% of a trait. Therefore, other factors including environmental factor should be taken into account.

Myths and Facts



- The shape of wine glass affects the taste.
- Not every wine improves your health. Red wine is far healthier than white wine because the former is fermented with its skin and thus contains far more antioxidants.
- Wine names usually indicate location or grape varieties.
- Women get drunk faster than men because of their water to fat ratio.
- Drinking a moderate amount of wine regularly will improve sex drive in men, and especially women. Compounds in red wine enhance sexual desire in women by increasing blood flow to erogenous zones.
- Early Roman women were forbidden to drink wine, and a husband who found his wife doing was allowed to kill her, by law.
- A cool dark and dry closet is the best space to store your wine.

Additional Resources

- <http://winefolly.com/review/wine-characteristics/>
- http://facts.randomhistory.com/2009/08/21_wine.html
- <https://medicalxpress.com/news/2016-06-sweet-tooth-affect-sugar-intake.html>

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