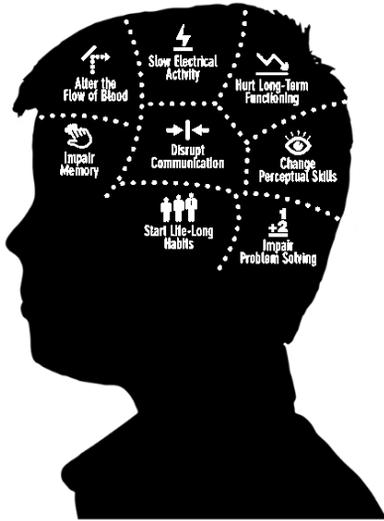


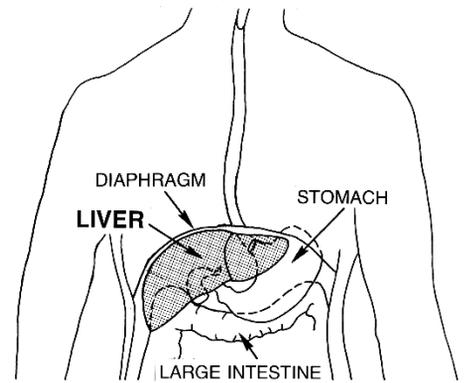
# ALCOHOL and its effects on the body

There is a lot of talk about how alcohol affects the human body, but how much of what you hear is true? In this reading, you will get a medical perspective on how alcohol is processed by the body and learn about both the short term and long term effects that alcohol has on the human body.

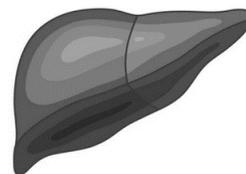


Thirty seconds after the first sip, alcohol races into the brain. It slows down the chemicals and pathways that brain cells use to send messages. This alters mood, slows reflexes, and throws off balance. The brain begins to struggle to store things in long-term memory, which is why some people experience difficulty with remembering events after a night of drinking. These are the short term effects that alcohol has on the human body.

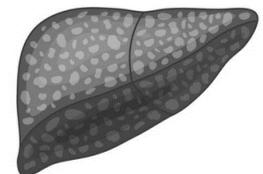
Alcohol also has long term effects on the body. All alcohols are toxic to the body. Methanol, for example, is not directly poisonous, but it is converted by the liver into formaldehyde and becomes very toxic. Ethanol, the alcohol found in many alcoholic beverages, is called grain alcohol. It is produced by the fermentation of sugar in fruits, grains, and vegetables.



This substance is not directly toxic until it's converted by the liver into acetaldehyde, which accumulates in the blood. This accumulation in the blood over long periods of time can result in liver damage.



HEALTHY LIVER



FATTY LIVER

In some cases, a human performance toxicologist (a person that tests for chemical toxins in the human body) can be called upon to test blood samples to determine if someone is under the influence of alcohol. A human performance toxicologist can also determine the quantity of alcohol in the blood stream.

This is called BAC or blood alcohol content. Usually, if a police officer suspects that someone is under the influence of alcohol, a preliminary field test, such as a Breathalyzer test or field sobriety test is given. If the officer believes that the person has a BAC above the legal amount, the person is taken into custody until a more concrete laboratory test (blood test) can be administered. The legal BAC differs from state to state and only a few hundredths of a BAC reading can be the difference between a charge of DUI or DWI.

DUI is an acronym for "driving under the influence." DWI stands for "driving while intoxicated," or in some cases, "driving while impaired." The terms can have different meanings or they can refer to the same offense, depending on the state in which you live.

In any case, DUI and DWI both mean that a driver is being charged with a serious offense that risked the health and safety of themselves and others. They can apply not only to alcohol and recreational drugs, but also to driving when prescription drugs impair his/her abilities. It's also important to understand that one is not worse than the other and that both can have a big effect on your life.

## RESEARCH IT!

Situation	Legal BAC limit	Possible Charge
Under 21 years old		DUI
Under 21 years old		DWI
21+ years old		DUI
21+ years old		DWI

Take the time to research the blood alcohol limits for your state and write them in the box to the right.

## CHECK YOUR UNDERSTANDING

1. What short term affects does alcohol have on the human body? Long term affects?
2. Which organ does alcohol affect if chronic abuse occurs?
3. What is the difference between a DUI and DWI?
4. How do impaired driving laws differ within your state?

# Blood-Breath Alcohol Charts

The alcohol calculators below recognize the gender bias in blood/breath alcohol testing. \*Not all situations follow these average patterns.

Male Approximate Blood/Breath Alcohol Percentage									
Num. Drinks	Body Weight (lbs.)								Legal Presumption
	100	120	140	160	180	200	220	240	
0	.00	.00	.00	.00	.00	.00	.00	.00	Presumption of Sobriety
1	.04	.03	.03	.02	.02	.02	.02	.02	Impairment Begins <b>0.02</b>
2	.08	.06	.05	.05	.04	.04	.03	.03	
3	.11	.09	.08	.07	.06	.06	.05	.05	
4	.15	.12	.11	.09	.08	.08	.07	.06	
5	.19	.16	.13	.12	.11	.09	.09	.08	
6	.23	.19	.16	.14	.13	.11	.10	.09	
7	.26	.22	.19	.16	.15	.13	.12	.11	
8	.30	.25	.21	.19	.17	.15	.14	.13	
9	.34	.28	.24	.21	.19	.17	.15	.14	
10	.38	.31	.27	.23	.21	.19	.17	.16	

Female Approximate Blood/Breath Alcohol Percentage									
Num. Drinks	Body Weight (lbs.)								Legal Presumption
	90	100	120	140	160	180	200	220	
0	.00	.00	.00	.00	.00	.00	.00	.00	Presumption of Sobriety
1	.05	.05	.04	.03	.03	.03	.02	.02	Impairment Begins <b>0.02</b>
2	.10	.09	.08	.07	.06	.05	.05	.04	
3	.15	.14	.11	.11	.09	.08	.07	.06	
4	.20	.18	.15	.13	.11	.10	.09	.08	
5	.25	.23	.19	.16	.13	.13	.11	.10	
6	.30	.27	.23	.19	.17	.15	.14	.12	
7	.35	.32	.27	.23	.20	.18	.16	.14	
8	.40	.36	.30	.26	.23	.20	.18	.17	
9	.45	.41	.34	.29	.26	.23	.20	.19	
10	.51	.45	.38	.32	.28	.25	.23	.21	

## APPLY IT!

Directions: Read each scenario below and answer the questions that follow using the charts on the previous page.

**1** Jakayla, a 17 year old student at Frazier High School attends a post graduation party and consumes 3 alcoholic beverages. She weighs 200 lbs. What is her approximate BAC? Will she receive a DUI if pulled over while driving home?

**2** A 160 lb. 23 year old woman has had 3 glasses of wine. What would be her approximate BAC? Should she drive home?

**3** How many alcoholic drinks would a driver under the age of 21 have to consume to put themselves at risk of a DUI?

**4** A man consumes 6 alcoholic beverages after work. He weighs 140 lbs. What is his approximate BAC? What do you suppose would change about his BAC if he'd consumed a meal of carbohydrates prior to drinking?

**5** A husband and wife spend several hours at a Christmas Eve party. During the party, the man consumes 9 alcoholic drinks and the woman consumes 8 alcoholic drinks. The woman weighs 123 lbs and the husband weighs 161 lbs. Who has the higher BAC? Why?

**6** A female college student who weighs 100 lbs goes to a frat party where alcohol is served. She has two beverages and drives back to her apartment. What is her approximate BAC? If she were pulled over, would she be arrested?

**7** In Connecticut, DUI is 0.09% for adults and a DWI is 0.08%. Can the female from problem 6 be charged in Connecticut?

answer  
key

This is called BAC or blood alcohol content. Usually, if a police officer suspects that someone is under the influence of alcohol, a preliminary field test, such as a Breathalyzer test or field sobriety test is given. If the officer believes that the person has a BAC above the legal amount, the person is taken into custody until a more concrete laboratory test (blood test) can be administered. The legal BAC differs from state to state and only a few hundredths of a BAC reading can be the difference between a charge of DUI or DWI.

DUI is an acronym for "driving under the influence." DWI stands for "driving while intoxicated," or in some cases, "driving while impaired." The terms can have different meanings or they can refer to the same offense, depending on the state in which you were pulled over.

In any case, DUI and DWI both mean that a driver is being charged with a serious offense that risked the health and safety of himself and others. They can apply not only to alcohol and recreational drugs but also to driving when your prescription drugs impair your abilities. It's also important to understand that one is not worse than the other and that both can have a big effect on your life.

## RESEARCH IT!

Situation	Legal BAC limit	Possible Charge
Under 21 years old		DUI
Under 21 years old		DWI
21+ years old		DUI
21+ years old		DWI

Take the time to research the blood alcohol limits for your state and write them in the box to the right.

## CHECK YOUR UNDERSTANDING

1. What short term affects does alcohol have on the human body? Long term affects?  
**Alters mood, slowed reflexes, and affects balance**
2. Which organ does alcohol affect if chronic abuse occurs? **The liver**
3. What is the difference between a DUI and DWI? **DUI is "driving under the influence" - more severe penalties and DWI is "driving while impaired" - less severe penalties**
4. How do impaired driving laws differ within your state? **They differ by age and penalties**

## APPLY IT!

Directions: Read each scenario below and answer the questions that follow using the charts on the previous page.

**1** Jakayla, a 17 year old student at Frazier High School attends a post graduation party and consumes 3 alcoholic beverages. She weighs 200 lbs. What is her approximate BAC? Will she receive a DUI if pulled over while driving home? **0.07, yes...anything above 0.02 would result in a DUI for someone under the age of 21**

*\*This is the answer for the state of GA. If you live in another state, you may have different laws that govern DUIs and DWIs.*

**2** A 160 lb. 23 year old woman has had 3 glasses of wine. What would be her approximate BAC? Should she drive home? **0.09- no...anything over 0 is considered unsafe for driving**

**3** How many alcoholic drinks would a driver under the age of 21 have to consume to put themselves at risk of a DUI? **Just 1**

**4** A man consumes 6 alcoholic beverages after work. He weighs 140 lbs. What is his approximate BAC? What do you suppose would change about his BAC if he'd consumed a meal of carbohydrates prior to drinking? **0.16- his BAC may be a little lower if he consumed a meal heavy in carbs prior to drinking**

**5** A husband and wife spend several hours at a Christmas Eve party. During the party, the man consumes 9 alcoholic drinks and the woman consumes 8 alcoholic drinks. The woman weighs 123 lbs and the husband weighs 161 lbs. Who has the higher BAC? Why? **The woman's BAC is approximately 0.30, while the man's is 0.21. The woman's is higher because she weighs less.**

**6** A female college student who weighs 100 lbs goes to a frat party where alcohol is served. She has two beverages and drives back to her apartment. What is her approximate BAC? If she were pulled over, would she be arrested? **0.09, yes**  
*\*This is the answer for the state of GA. If you live in another state, you may have different laws that govern DUIs and DWIs.*

**7** In Connecticut, DUI is  $>0.09\%$  for adults and a DWI is  $>0.08\%$ . Can the female from problem 6 be charged in Connecticut? **She can be charged with DWI, but not DUI**