

# Blood Alcohol Concentration

- Amount of alcohol in the blood at any given time
  - The higher the BAC the greater the effect on a person's mind/behavior.
- It takes typically one to two hours for the body to fully oxidize one typical alcoholic drink

## What Is a Standard Drink?

**12 fl oz of  
regular beer**



**8–9 fl oz of  
malt liquor**  
(shown in a  
12 oz glass)



**5 fl oz of  
table wine**



**1.5 fl oz shot of  
distilled spirits**  
(gin, rum, tequila,  
vodka, whiskey, etc.)



about 5%  
alcohol



about 7%  
alcohol



about 12%  
alcohol



about 40%  
alcohol

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Each beverage portrayed above represents one standard drink (or one alcoholic drink equivalent), defined in the United States as any beverage containing .6 fl oz or 14 grams of pure alcohol. The percentage of pure alcohol, expressed here as alcohol by volume (alc/vol), varies within and across beverage types. Although the standard drink amounts are helpful for following health guidelines, they may not reflect customary serving sizes.

# Men

## Approximate Blood Alcohol Percentage

Drinks	Body Weight in Pounds								
	100	120	140	160	180	200	220	240	
0	.00	.00	.00	.00	.00	.00	.00	.00	Only Safe Driving Limit
1	.04	.03	.03	.02	.02	.02	.02	.02	Impairment Begins
2	.08	.06	.05	.05	.04	.04	.03	.03	Driving Skills Significantly Affected
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	Possible Criminal Penalties
7	.26	.22	.19	.16	.15	.13	.12	.11	Legally Intoxicated
8	.30	.25	.21	.19	.17	.15	.14	.13	Criminal Penalties
9	.34	.28	.24	.21	.19	.17	.15	.14	
10	.38	.31	.27	.23	.21	.19	.17	.16	Possible Death

Subtract .01% for each 40 minutes of drinking.

One drink is 1.25 oz. of 80 proof liquor, 12 oz. of beer, or 5 oz. of table wine.

# Women

## Approximate Blood Alcohol Percentage

Drinks	Body Weight in Pounds										
	90	100	120	140	160	180	200	220	240		
0	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	Only Safe Driving Limit
1	.05	.05	.04	.03	.03	.03	.02	.02	.02	.02	Impairment Begins
2	.10	.09	.08	.07	.06	.05	.05	.04	.04	.04	Driving Skills Significantly Affected Possible Criminal Penalties
3	.15	.14	.11	.10	.09	.08	.07	.06	.06	.06	
4	.20	.18	.15	.13	.11	.10	.09	.08	.08	.08	
5	.25	.23	.19	.16	.14	.13	.11	.10	.09	.09	
6	.30	.27	.23	.19	.17	.15	.14	.12	.11	.11	Legally Intoxicated
7	.35	.32	.27	.23	.20	.18	.16	.14	.13	.13	Criminal Penalties
8	.40	.36	.30	.26	.23	.20	.18	.17	.15	.15	
9	.45	.41	.34	.29	.26	.23	.20	.19	.17	.17	
10	.51	.45	.38	.32	.28	.25	.23	.21	.19	.19	Possible Death

Subtract .01% for each 40 minutes of drinking.

One drink is 1.25 oz. of 80 proof liquor, 12 oz. of beer, or 5 oz. of table wine.

# What influences how something is absorbed?

- Weight
- Gender
- Body chemistry
- Body fat
- Food taken with alcohol
- State of health
- State of mind



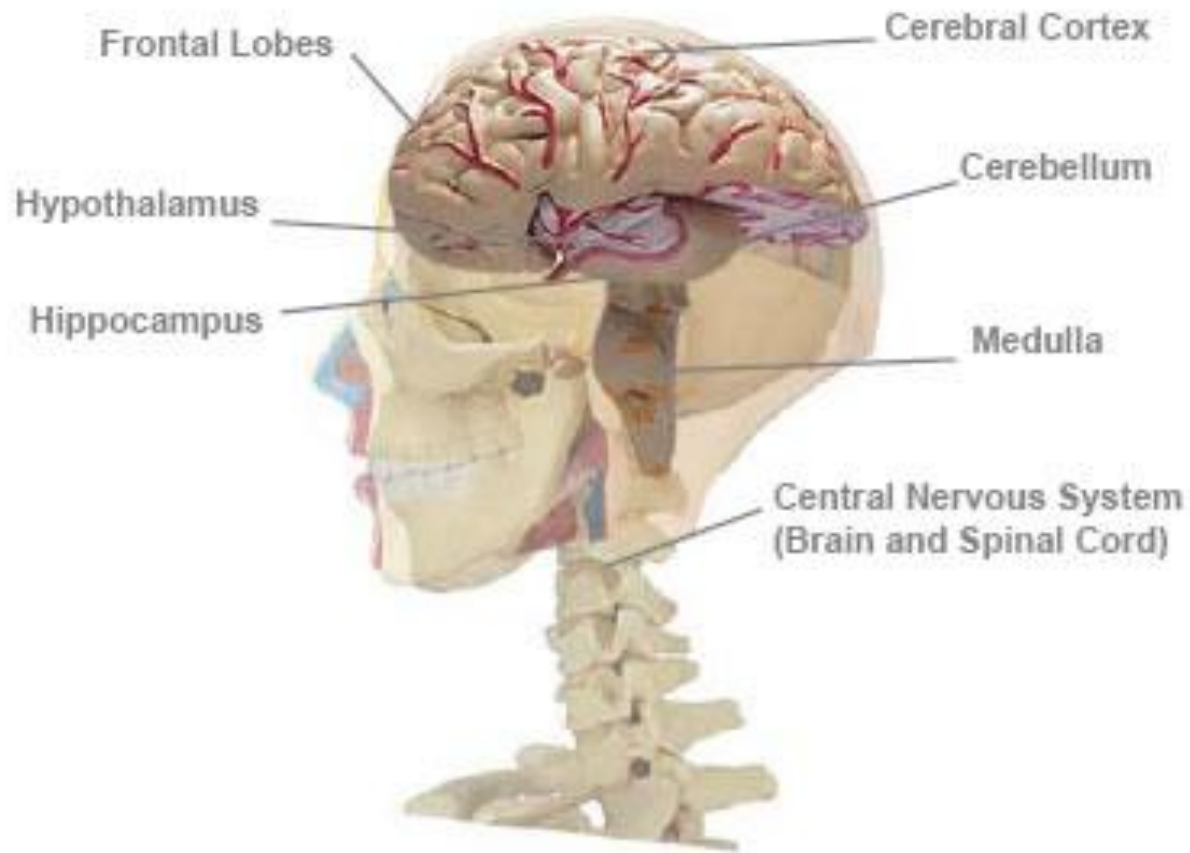
Oxidation:

The liver aids in detoxification.....

The liver breaks down alcohol in the body at a rate of  $\frac{1}{2}$  ounce of pure alcohol per hour.

## Alcohol and Your Brain

### • What to Know •



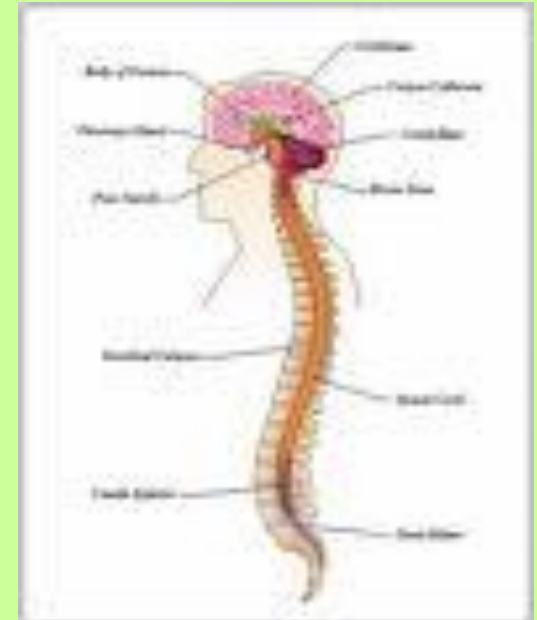
# CEREBRAL CORTEX



- The outer surface of the brain, the cerebral cortex works with information from your senses.
- *Your cerebral cortex on alcohol:*
- Your inhibitions are lowered due to alcohol's depressing effect. A small amount may make you feel relaxed and confident; but, before long, you're likely to talk too much, act silly and stupid, or lose judgment.
- Slows down the cerebral cortex.
- Your vision may get blurry; you may slur your words; and, you could have decreased hearing and trouble smelling and tasting.

# CENTRAL NERVOUS SYSTEM

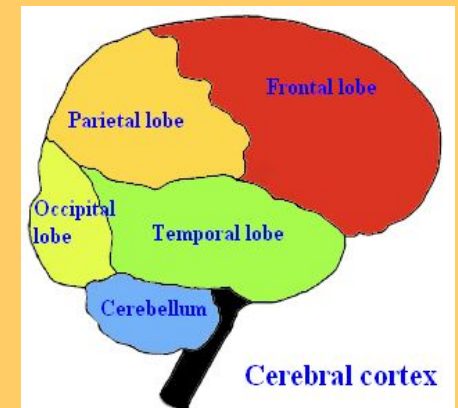
- When you think of something you want your body to do, the central nervous system — the brain and the spinal cord — sends a signal to that part of the body.
- ***Your central nervous system on alcohol:***
  - Alcohol slows down the central nervous system.
  - You will think, speak, and move slower.



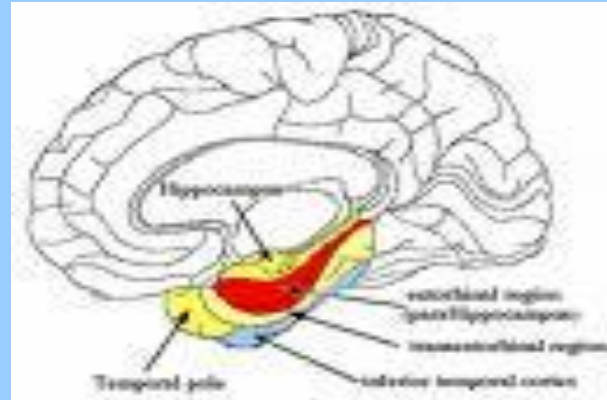


# PREFRONTAL CORTEX

- The brain's frontal lobes are important for planning, forming ideas, making decisions, and using self-control. Drinking alcohol over a long period of time can damage the frontal lobes forever.
- ***Your frontal lobes on alcohol:***
- You may find it hard to control urges.
- You may become violent or act without thinking.



# HIPPOCAMPUS



- Your memories are made in the hippocampus. A damaged hippocampus makes it harder to learn and hold on to knowledge.
- ***Your hippocampus on alcohol:***
- You may have trouble remembering something you just learned (a name, phone number). This can happen after just one or two drinks.
- You could experience a blackout — not being able to remember entire events, such as what you did last night — from drinking a lot of alcohol quickly.

# CEREBELLUM



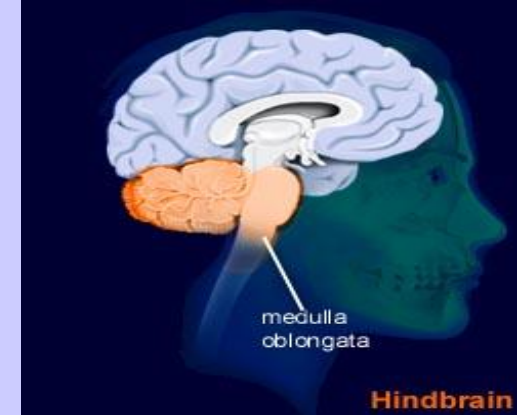
- The cerebellum is important for coordination, thinking, and being aware.
- ***Your cerebellum on alcohol:***
- Your hands may be so shaky that you can't touch or grab things normally.
- You may lose your balance and fall.
- You may not know where you are.

# HYPOTHALAMUS



- The hypothalamus is a small part of the brain that does an amazing number of your body's housekeeping chores. Alcohol upsets the hypothalamus work.
- ***Your hypothalamus on alcohol:***
- Blood pressure, hunger, thirst, and the urge to urinate increase.
- Body temperature and heart rate decrease.

# MEDULLA



- The medulla is your body's automatic pilot. It keeps your heart beating, lets you breathe without thinking about it, and keeps your body at the right temperature. People drink alcohol sometimes to keep warm. Drinking alcohol can **seem** like it makes you warmer, but actually alcohol chills the body. Drinking a lot of alcohol outdoors in cold weather can cause your body temperature to fall below normal. This dangerous condition is called hypothermia.
- ***Your medulla on alcohol:***
  - Breathing and heart rate slows.
  - Your temperature lowers.
  - Drinking a lot of alcohol in a short time could shut down the medulla. You could go into a coma.