Alcohol Training for the Tavern Employee

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I. What is Alcohol

II. How does Alcohol work in the body.

III. How do laws affect your Role in the Tavern

1. Review Wisconsin Alcohol Beverage and Tobacco Laws for Retailers
2. Acute effects of Alcohol affecting behavior.
3. Importance of observations

IV. Strategies to de-escalate problems

1. Observations
2. Interactions and reporting to other employees.
3. Calming, removing and staying friends and moving on.

Role playing. 2/1/23

Conclusion. DeAndre Allen Bartender
2/1/23
Breanna mcdonald
2/1/23

Adi Sarkanjac 2/1/23

HYSIOLOGY OF ALCOHOL: START TO FINISH

ntry

hanol can enter the human body in several different manners: injection, inhalation, insertion, smosis, and ingestion. Injection of ethanol directly into the body is an extremely dangerous ocedure because it produces a localized concentration of ethanol that can severely affect the art and other vital organs. This phenomenon is referred to as the "bolus effect". Another ssible route for ethanol to enter the body is through inhalation of alcoholic vapors. When the coholic vapors come into contact with the lungs and mucous membranes lining the nasal assages and throat, then the ethanol can diffuse through the membranes into the blood. owever, to reach significant levels of alcohol concentration requires exposure to a severely ritating environment for an extended period of time. It is therefore very unlikely that any ndividual would become intoxicated in this manner. Insertion is possible, but dangerous and ould do damage to the tender body cavities. Ethanol has not been demonstrated to accumulate n the body as a result of absorption/osmosis through the skin. The usual method for alcohol to nter the body is by ingestion of an alcoholic beverage. Ethanol is absorbed into the blood stream y contact with and diffusion through mucous membranes. **Ethanol is not digested, but bsorbed unchanged!** The mouth, throat, and entire gastro-intestinal tract are all common sites f alcohol absorption. The anal canal, vaginal tract, and ureter are also lined with mucous nembranes and could serve as possible sites for alcohol absorption by insertion. See Figure 1.

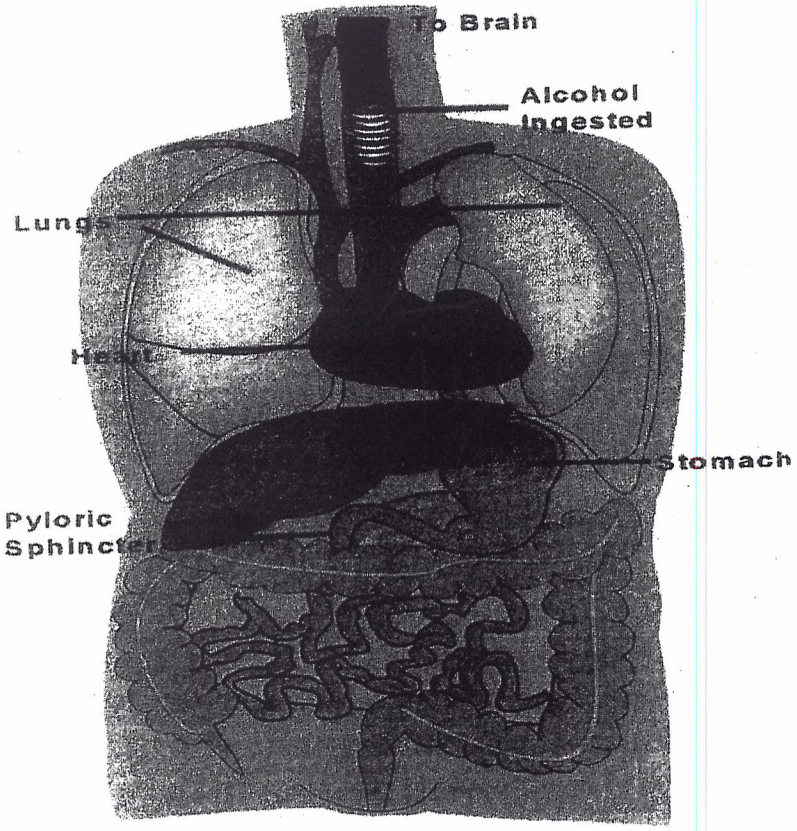

Figure 1

Residual Mouth Alcohol

Once the alcoholic beverage enters the oral cavity, absorption begins immediately. Absorption continues as the beverage passes into the stomach and later into the small intestine. Since the alcohol absorbed through the mucous membranes lining the mouth is rapidly distributed to the surrounding tissue, the presence of alcohol can still be detected even after the alcoholic beverage has been swallowed. Residual alcohol is the alcohol that remains in the mouth and will affect a breath alcohol test. Alcohol can be reintroduced back into the oral cavity under certain conditions. If alcohol is present in the stomach, and some of the alcohol is vomited or regurgitated back into the mouth, then a portion of that alcohol would be absorbed by the mucous membranes lining the oral cavity. REGARDLESS OF HOW THE ALCOHOL IS INTRODUCED INTO THE MOUTH, THE PRESENCE OF RESIDUAL ALCOHOL DIMINISHES BELOW SIGNIFICANT LEVELS WITHIN TWENTY MINUTES. It is for this reason that Wisconsin requires breath testing equipment operators to observe the subject for twenty minutes prior to obtaining a breath specimen.

Absorption

Remember, that alcohol is not digested, but absorbed unchanged. About 25% of the ingested alcohol is absorbed through the stomach lining directly into the blood stream. The exact amount is variable and is influenced by the emptying time of the stomach. Such direct absorption is unique in that most other substances cannot diffuse through the protective stomach lining. The remaining unabsorbed alcohol is rapidly absorbed once it enters the small intestine. See Figure 2.

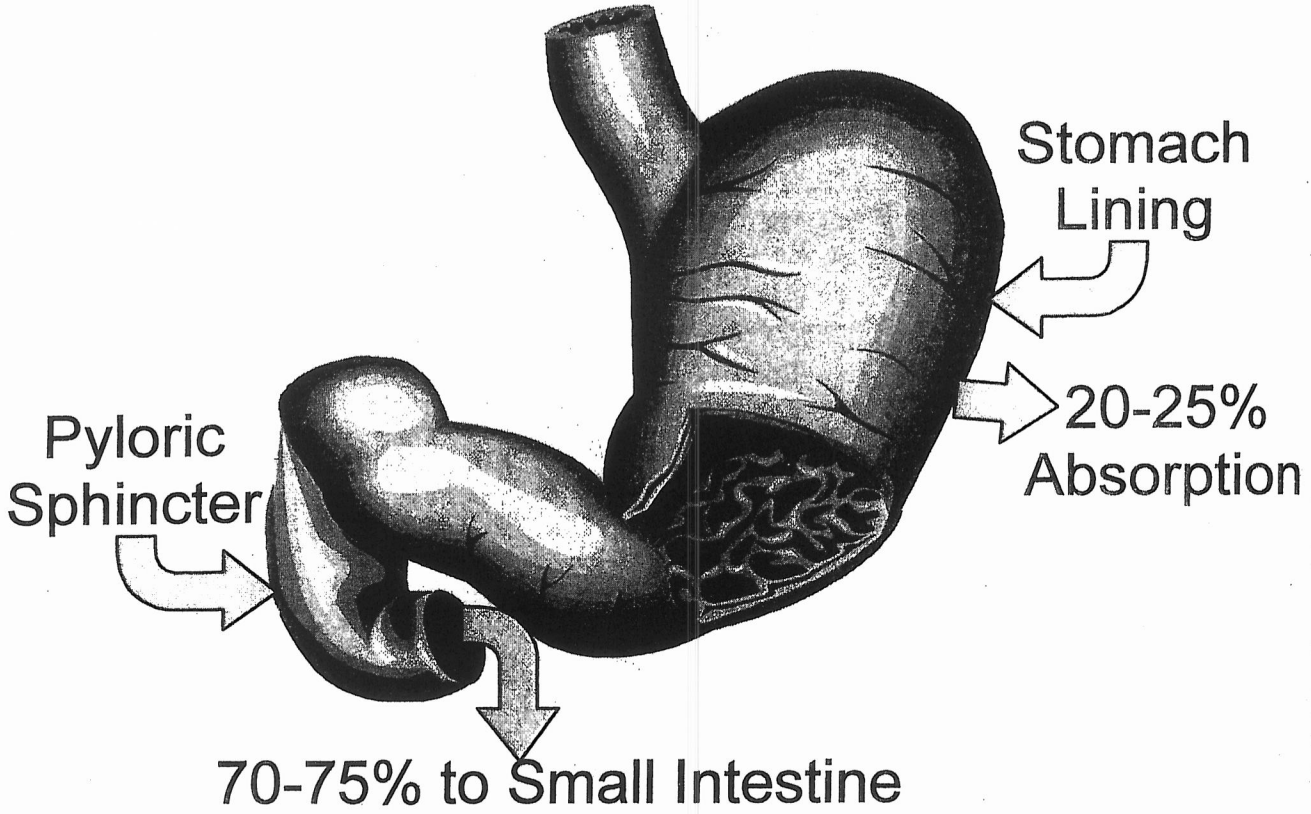

Figure 2

: absorption from the stomach wall is slow and intestinal absorption is rapid, the rate of ıol absorption is influenced by stomach emptying time. Anything that increases stomach tying time also increases the absorption rate; anything that delays the stomach emptying time slow the absorption rate. The type of alcoholic beverage consumed and the concentration of hol in the stomach can affect the absorption rate. Carbonated beverages tend to increase the and fatty or oily beverages to decrease it. The most rapid rate of absorption is achieved when)% solution of alcohol in water is consumed. Higher or lower concentrations than this mote slower absorption.

e most significant factor affecting alcohol absorption is the quantity of food ingested with or mediately prior to consumption of alcohol. Certain drugs, emotional states, and diseases can o affect the absorption rate.

ecause of the various factors that can affect the rate of alcohol absorption, it can best be plained through general rules, which describe the overall concepts, but may not be specific to a ven situation. Alcohol from a single drink will be completely absorbed in between 30-90 inutes, when consumed on an empty stomach. When drinks are consumed successively over me, the peak alcohol level is usually attained 20 to 30 minutes after the last drink.

Delayed absorption (due to the food factor) always results in lower peak alcohol levels that last onger (see Figure 3).

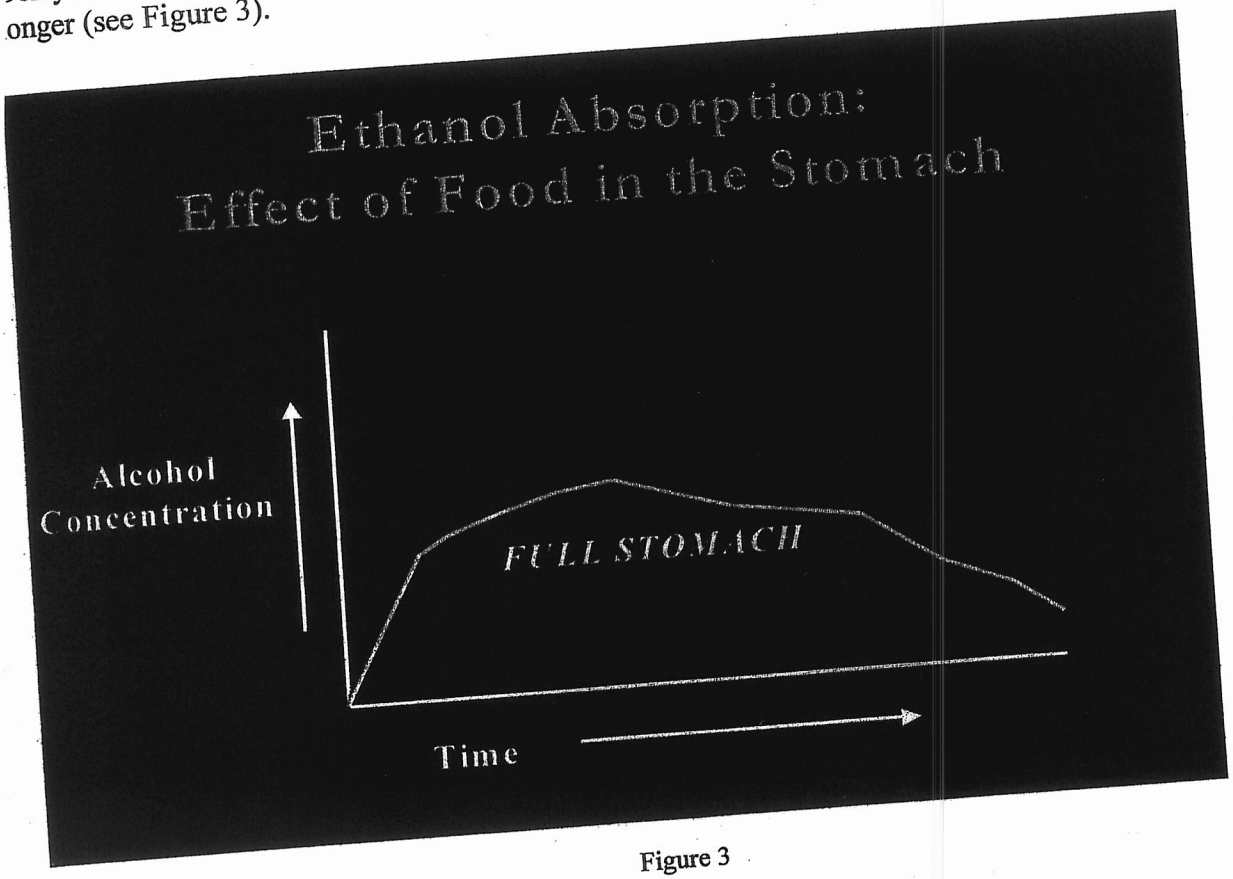

Figure 3

Distribution

Once the alcohol has been absorbed, it is transported throughout the entire body. See Figure 4. When the ethanol is absorbed into the blood stream from the small intestine, it is transported to and passes through the liver. From the liver the alcohol next passes with the blood to the right side of the heart. The alcohol and blood then travel to the lungs and return to the left side of the heart. When the alcohol and blood leave the heart, they are distributed throughout the entire body. The blood leaving the heart reaches the brain tissue directly through the carotid arteries. Studies have shown that equilibrium between the arterial blood and the brain is reached extremely rapidly.

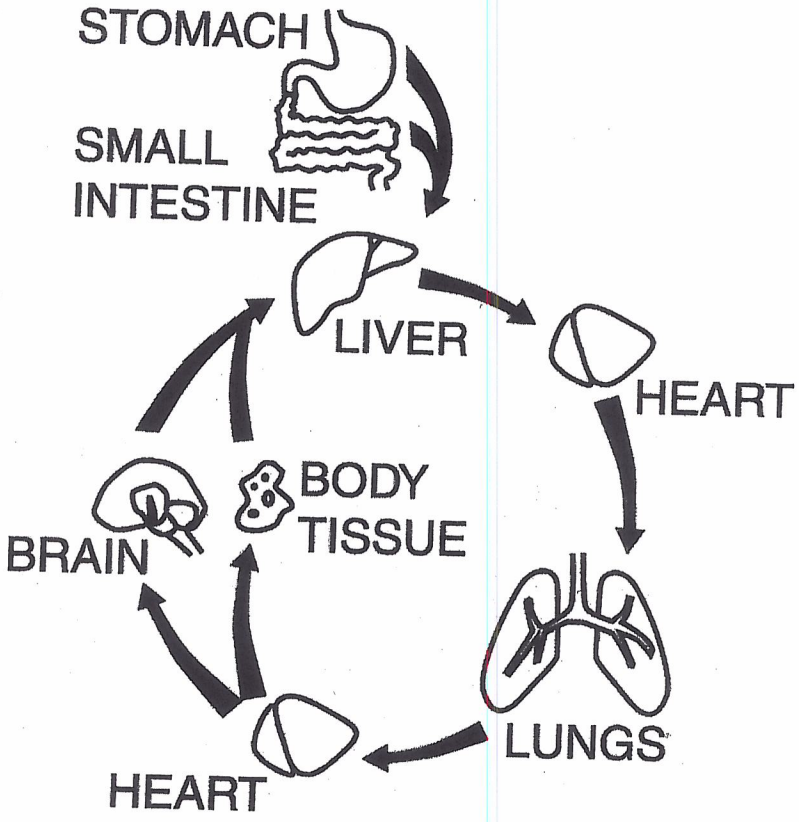

Figure 4

The concentration of ethanol in the various tissues depends upon the tissue water content. The greater the water content of a tissue, the greater its alcohol concentration will be in relation to other tissues. Water content varies according to the different kinds of tissues. For example, the water content of muscle is greater than the water content of bone. The tissue water content can also vary from one individual to another. An obese person has less water per pound of body weight than an emaciated (thin) person because adipose (fat) tissue has very low water content. Body water content also varies according to sex. Females have less water per pound of body weight than males because of the presence of adipose tissue in the breasts, buttocks, and thighs.

e the concentration of alcohol is directly proportional to the body water content (within the ts already discussed), the concentration will vary according to the body weight. As a general , the heavier a person is, the greater the amount of alcoholic beverage that must be consumed ach a specific alcohol concentration in the body. See Figure 5. The rate of alcoholic rage consumption can affect the distribution of alcohol throughout the body. A slow steady of consumption allows absorption and distribution to closely follow, thereby producing a steady rise in the alcohol concentration of the body. When this happens the alcohol centration in the arterial blood will exceed the alcohol concentration in the venous blood. It is ortant to remember that it is the alcohol concentration in the arterial blood, which is reaching brain tissue and exerting the effects on mental and physical faculties.

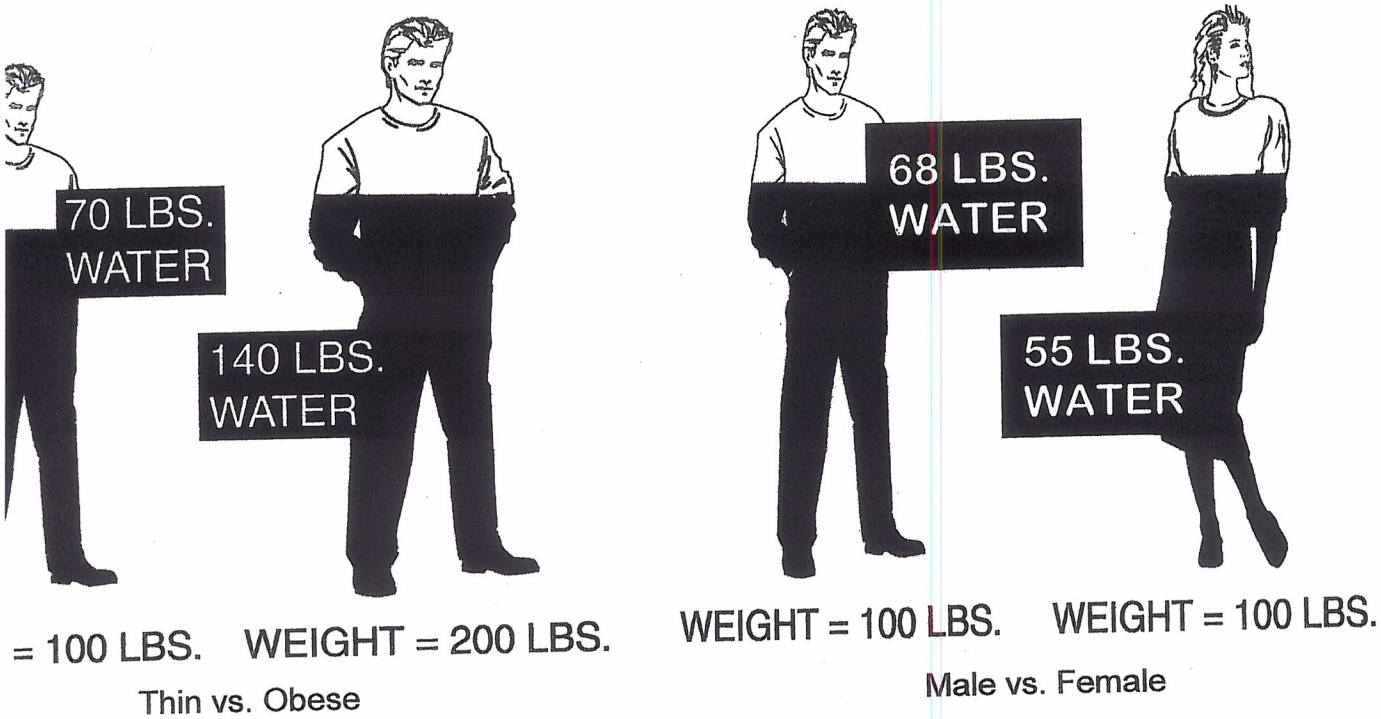

Figure 5

stribution Ratios

e distribution ratios given below are for the amount of alcohol in tissues and body fluids npared to that in whole blood, which has been assigned a value of 1.00. The values are given averages; for example, the actual ratios between urine and blood have ranged from 1.12 to 1.

Urine	1.35
Brain	1.17
Blood Plasma	1.16
Saliva	1.12
Liver	0.91
Blood Clot	0.77
Whole Body: Men	0.68
Whole Body: Women	0.55
Fat	0.019

Elimination

Alcohol is removed or eliminated from the body in several ways: metabolism, excretion and evaporation. Metabolic processes account for the elimination of the majority of the alcohol consumed. As alcohol is transported through the body by the blood, it passes again and again through the liver. During each pass through the liver, the enzyme Alcohol Dehydrogenase (ADH) metabolizes a portion of the alcohol. The alcohol is oxidized to simpler compounds such as acetaldehyde and acetic acid. Other enzymes further break down the acetic acid and eventually urea is formed and excreted through the kidneys.

A small percentage of the alcohol consumed is excreted unchanged into the urine. The amount of alcohol in the urine is proportional to the alcohol concentration in the blood. The urine is stored in the bladder prior to elimination from the body. Because the bladder is poorly supplied with blood, very little of the urine alcohol is reabsorbed into the blood.

A portion of the ingested alcohol is evaporated into the breath and exhaled from the body. The exchange of alcohol from the blood to the breath occurs in the alveoli of the lungs. See Figure 6. The alveoli are minute sacs deep in the lungs, which are richly supplied with blood from the heart. The separation between the alveoli and the blood capillaries is permeable to certain vapors. This is where the exchange between oxygen and carbon dioxide takes place.

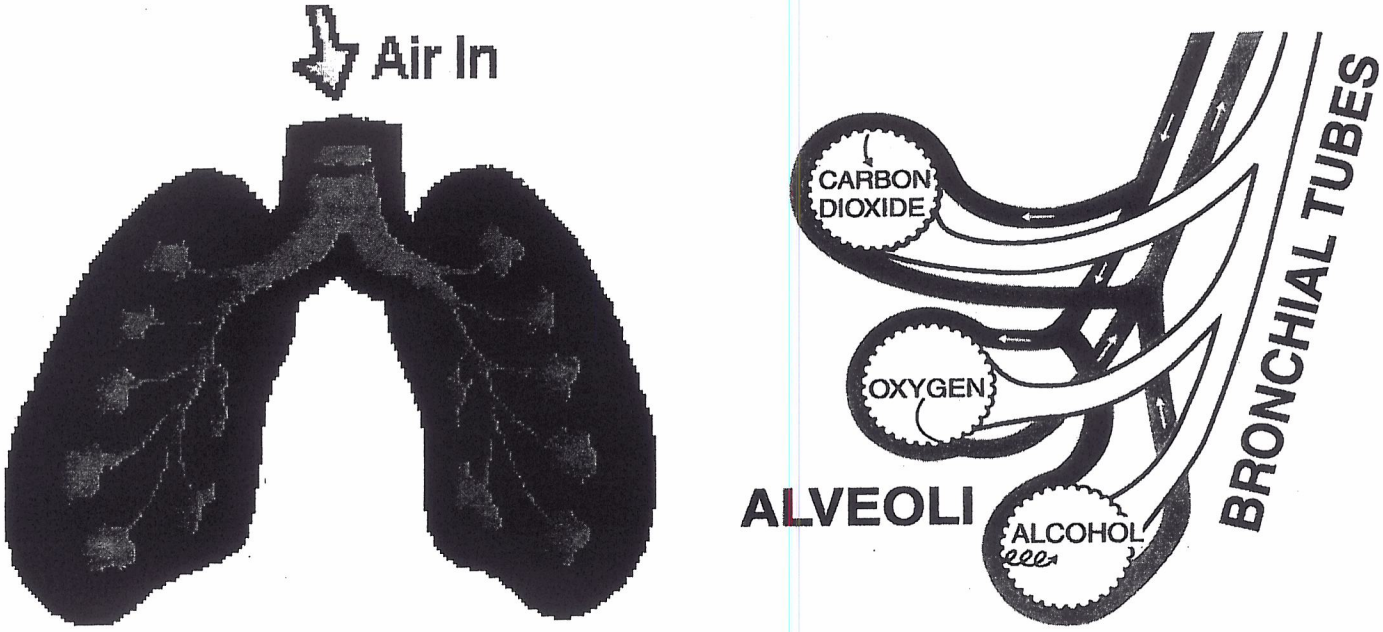

Figure 6

portion of the alcohol in the blood can evaporate into the breath by the process of diffusion. his exchange can be explained by Henry's Law. See Figure 7. According to Henry's Law, the ɔncentration of a volatile substance in the air above a fluid in an enclosed container is ·oportional to the concentration of the volatile substance in the fluid, within certain limits of ɔncentration, temperature and pressure.

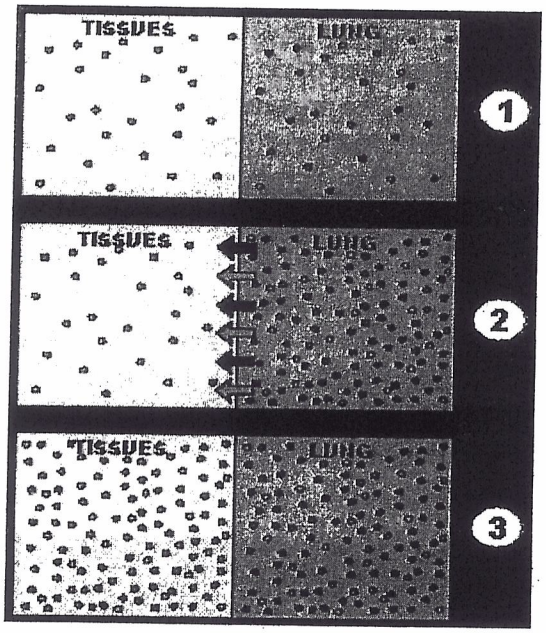

Figure 7

give a better understanding of what this means consider what happens when household monia is poured into a bucket of water. If only a small amount of ammonia is added then only ɣeak odor is detected in the air above the water mixture. If twice as much ammonia is added odor becomes twice as strong. Thus, measuring the concentration of the air above the liquid ıbles us to determine how much is dissolved in the liquid.

ɜ temperature of breath emanating from the mouth is normally 34.5°C. At this temperature the od:breath ratio of 1:2100 has been accepted for use in computing blood alcohol .centrations from breath. This means that at a breath temperature of 34.5°C, 2100 milliliters of p lung breath will contain the same amount of alcohol as 1 milliliter of blood. This does not ın, however, that all individuals have a blood:breath ratio of exactly 1:2100.

ɨent studies have shown that the average blood:breath ratio is about 1:2300. This means that ɔd alcohol concentrations obtained from breath testing instruments would be expected to htly underestimate actual blood alcohol concentrations.

Visconsin, breath alcohol results are expressed in grams of alcohol per 210 liters of breath. conversion from a breath to a blood alcohol concentration is made. See case law: State v. Manus, 152 Wis. 2d 113 (1989).

The rate at which alcohol is eliminated is constant for a particular individual, but varies somewhat from one person to another. Reported rates of elimination usually range from 0.010 to 0.025 per hour. The average rate of elimination is reported as being in the range of 0.015 to 0.018 per hour.

Regardless of the method, elimination is a physiological process and as such is not significantly affected by exercise or stimulants such as caffeine. Therefore neither stimulants nor exercise will affect the results of a breath alcohol test. Fructose, a sugar, has been suggested to increase the rate of elimination, but no consistent evidence has been demonstrated. Of course, increasing the rate of elimination would only speed up the process of sobering up, and would not change the effect of the alcohol on a person's performance. Currently the only proven method of sobering up is to allow sufficient time for the body to eliminate the alcohol.

Alcohol Curve

In order to accumulate alcohol in the body, the rate of absorption must exceed the rate of elimination. When consumption ceases and absorption has been completed, the alcohol concentration will gradually fall as the alcohol is eliminated. See Figure 8 shows a generalized representation of an alcohol concentration curve.

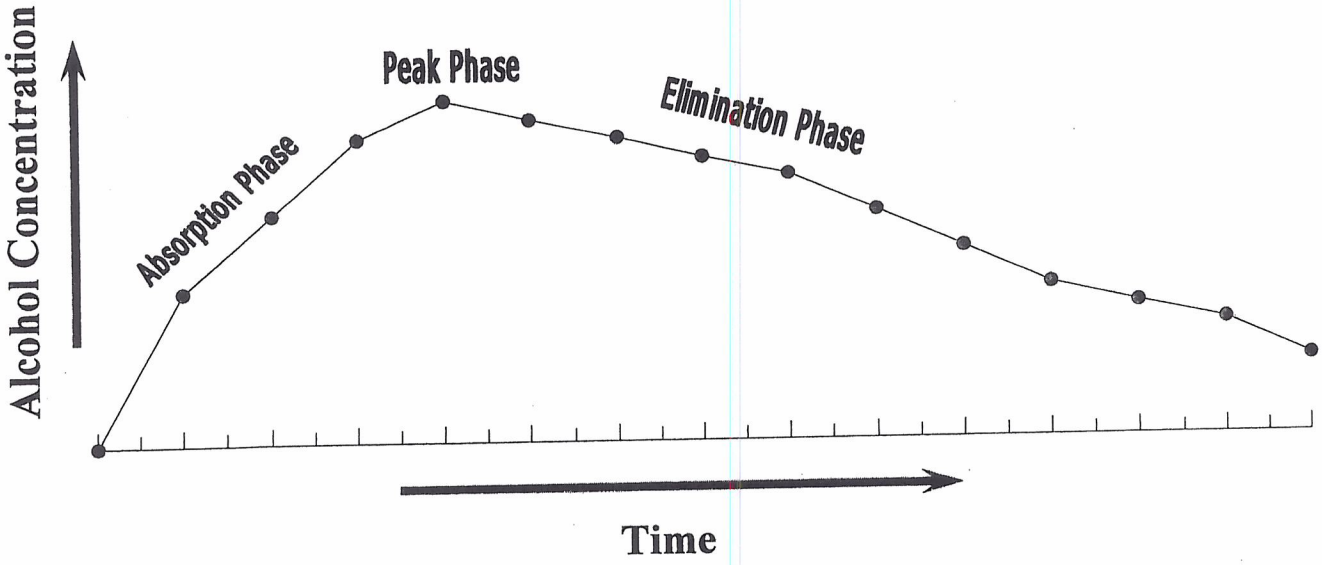

Figure 8

The curve can be divided into three phases: the absorption phase, the peak phase, and the elimination phase. The slope of each phase will vary according to the various factors affecting absorption, distribution and elimination. It is important to understand that absorption, distribution and elimination occur in all of these phases (at the same time). Because of the various factors that can affect alcohol curves and charts, the best method of determining the alcohol concentration in the body is to conduct an analysis of a suitable specimen.

PHARMACOLOGY OF ALCOHOL

The most important aspect regarding the effect of alcohol on human beings is that it is a depressant drug. Alcohol exerts its effects on the brain where it acts to depress nerve transmission and to reduce the coordination between various nerve centers. See Figure 9. This depression of nerve transmission results in the impairment of normal physical and mental faculties. As the body attains increasing alcohol concentrations, impairment of the normal physical and mental faculties also increases. Research has shown that between alcohol concentrations of 0.00 and 0.04, the majority of individuals do not demonstrate significant measurable impairment. Changes in personality and mental states are sometimes observed and some people do show impairment even at these low alcohol concentrations. When the alcohol concentration increases to between 0.04 and 0.08, the majority of individuals demonstrate some degree of measurable impairment. Judgment is the first area to be noticeably affected. Behavioral changes are sometimes observed and there is a loss of social inhibition. Fine muscular coordination is affected and complex reaction time, the time required to perform two tasks nearly simultaneously, is lengthened. Above alcohol concentrations of 0.08, current research has shown that all people are impaired with regards to the operation of a motor vehicle. Increasing the alcohol concentration above 0.08 results in further impairment of normal physical and mental faculties.

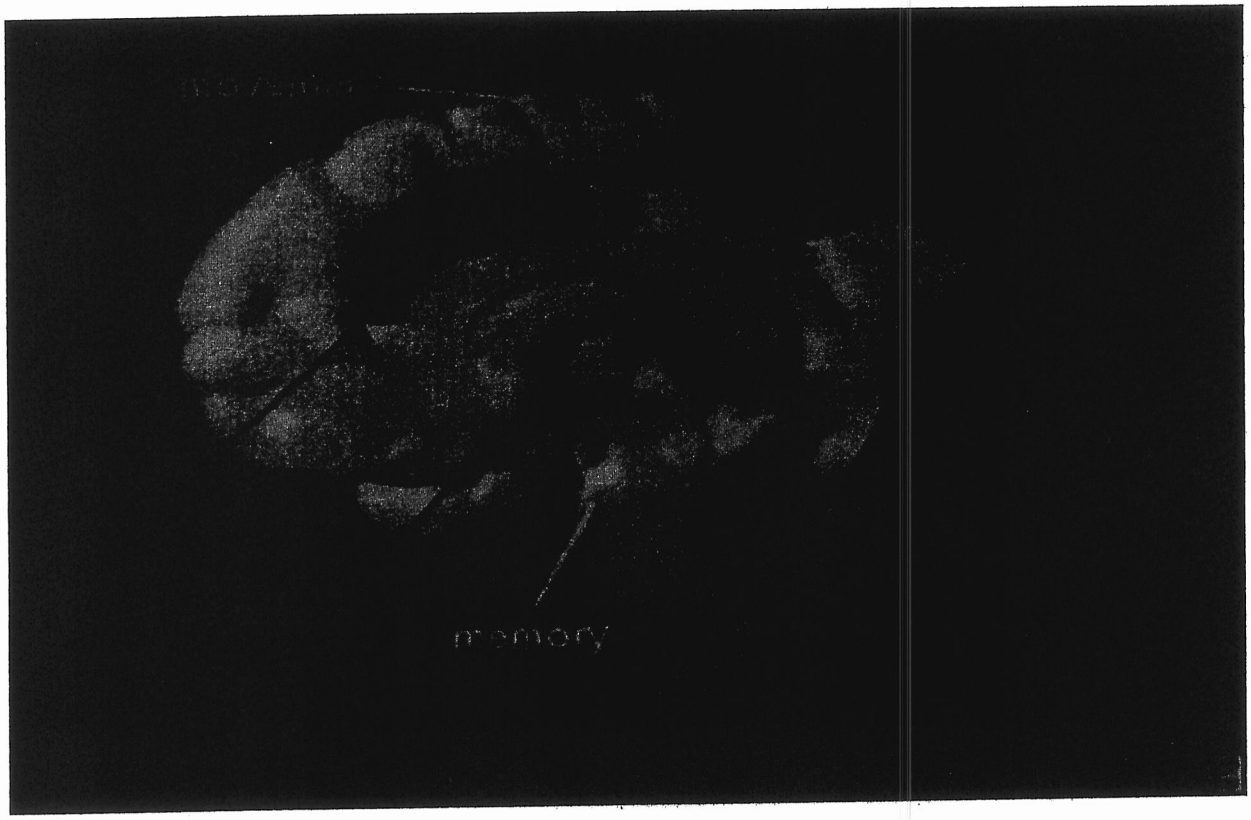

Figure 9