

# Water Flea



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**Do you need an idea for a scientific study?  
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**Start learning right now about how different drugs affect the human body. Take the following brief quiz to see how much you already know about drugs and their effects. See the bottom of page 4 to check your answers.**

1. Currently, more teens die from overdoses of prescription drugs than from heroin and cocaine combined.
  - a. true
  - b. false
2. Currently, which of the following has the highest reported monthly use by teenagers?
  - a. smoking cigarettes
  - b. smoking marijuana
  - c. smoking crack cocaine
  - d. using skin patches to take LSD
3. A majority of high school students today do *not* think that regular steroid use is dangerous to their health.
  - a. true
  - b. false
4. Teens who learn about the risks and dangers of abusing drugs are about 50% less likely to do so than those who do *not* learn about the dangers.
  - a. true
  - b. false



5. Based on its active ingredient (THC), marijuana today is about how many times stronger than it was 20 years ago?
  - a. 5 times stronger
  - b. 10 times stronger
  - c. 20 times stronger
  - d. 50 times stronger

## A Cure for Alcohol Hangovers?

Although used by many people for centuries and found throughout both ancient and modern cultures, alcohol remains a dangerous substance that can lead to serious health issues. The lethal dose of pure ethanol, the active ingredient in all alcohol beverages, is only about 150 milliliters or about the size of a small coffee cup. It is estimated that the total bill relating to alcohol abuse in the United States is about \$200 billion dollars per year due to treatment, lost productivity, and legal dealings. Although many individuals use alcohol in a responsible manner, alcohol is listed as the most abused substance in this country, with over 14 million Americans abusing or having problems with alcohol use.

A number of misconceptions exist regarding the use of alcohol. One of the most persistent is the manner in which a person can purge alcohol from the body. Tomato juice, mints, cold showers, coffee, and a host of other remedies have been suggested to eliminate alcohol and its effects from an inebriated person. In reality, only one method truly works to reduce the effects of alcohol; time. Figure 1 below shows the blood alcohol concentration (BAC) for a person who drank alcohol at two different times. The solid line shows the person's BAC who drank alcohol when he had an empty stomach (he had fasted overnight), while the dashed line shows his BAC after drinking when he had just eating a large meal. In both cases, the person drank the total alcohol consumed at time zero (0 hours).

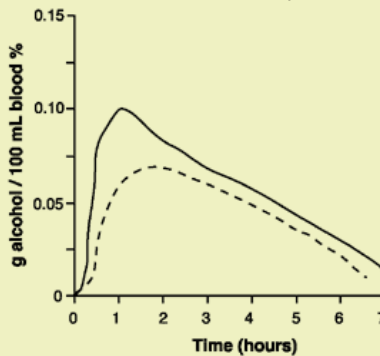


Figure 1. The effect of food and drinking alcohol on the blood alcohol level of a person.

**Please use figure 1 to answer the following questions:**

1. About how long after drinking the alcohol did it have its maximum effect on the person?
2. In which case did drinking the alcohol have a greater effect on the person, drinking on a full or empty stomach?
3. About how long did the alcohol take to be totally eliminated from the person's body?
4. If the person in this study was a male, how do you think the graph would change for a female of the same body size if she conducted the same study?

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## Just the Facts, Please

Drinking alcohol is a large part of the American culture. However, many times movies, television, other media, and friends distort the real picture of alcohol use. For instance, most high school and college students believe their friends and acquaintances drink larger amounts of alcohol than they actually consume. This often leads people to drink more than they actually want in an effort to be more like their counterparts (who are really drinking less than they think). A number of other myths regarding alcohol exist. Table 1 presents just a few.

**Table 1. Five myths and truths of alcohol and its use**

	Myth	Truth
1.	Children cannot be alcoholics	Anyone of any age can be an alcoholic
2.	Alcoholics are morally weak	Alcoholism is due to genetic, social, and environmental factors
3.	Alcohol is a stimulant	Alcohol is a depressant
4.	Alcoholics only hurt themselves	Everyone is affected by alcoholism
5.	Alcoholism can be cured	Alcoholism can be treated

Although many people do not like to classify alcohol as a drug, alcohol certainly meets the formal definition as a substance that changes the physical body and/or mind of a person. Alcohol is the most used drug simply because it works; quickly causing changes in the body and mind of the user. Table 2 lists how varying amounts of alcohol can affect a person.

**Table 2. BAC and human body changes**

BAC (g alcohol/100 mL blood %)	Body Changes
0.01-0.05	relaxation, loss of inhibitions
0.06-0.10	numbness, nausea, sleepy
0.11-0.20	mood swings, anger, sadness, mania
0.21-0.30	aggression, depression, stupor
0.31-0.40	unconsciousness, coma, possible death
0.41-greater	death

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Answers: Page 2 Answers: 1) d. 2) b. 3) a. 4) b. 5) b. Page 3 Answers: 1) Between 1 and 2 hours. 2) Drinking on an empty stomach. 3) About 8 hours. 4) The graph would show larger spikes due to the difference in body make-up of the male and female.

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