

Effects and Elimination of Alcohol

Fact Sheet 11.4  
Content Information

Effects of Alcohol on Space Management

- **Searching** – the prime sense humans use in driving is vision. Even low levels of alcohol (.03) have been found to reduce this ability. Alcohol affects vision in a number of ways. This is particularly important since about ninety percent of what a driver “identifies” is by use of his or her eyes. The prime reason for visual problems after use of alcohol is lessened muscular control. Alcohol relaxes the fine muscles of the eye that focus and control eye movement.
- **Eye focus** – the human eye has the ability to change focus rapidly from objects close to the viewer to objects far away. Alcohol delays this process; thus, a driver may experience difficulty, especially at higher speeds.
- **Double vision** – although humans have two eyes, each eye must work in conjunction with the other. Alcohol impairs this coordination and may produce a double image. Some drivers close one eye to cope with this, but this greatly affects the next two areas—distance judgment and side vision.
- **Distance judgment** – a driver must be able to determine how far objects are from his or her path of travel. This is complicated by movement of other objects. Alcohol reduces the ability to judge distance accurately.
- **Side vision** – sometimes called peripheral vision, this ability is critical to the driving task. A person’s central vision is very narrow so a driver must be able to take in a number of things to each side of his/her path of travel. Speed also reduces side vision.
- **Visual acuity** – this is sharpness of vision. Alcohol may make images blur for the driver and thus impair the ability to identify properly what is in the traffic scene.
- **Color distinction** – a driver gets much information from different colors in the traffic scene. Red is used on three types of signs: stop, yield, or some prohibition of action. If alcohol is impeding a driver’s ability to determine accurately the color of a sign or traffic light, problems in information processing will occur.
- **Night vision** – humans have limited night sight at best, and alcohol reduces this ability further. In addition, alcohol reduces the control of light entering the eye. This is important, since drivers must adapt from the situation of no oncoming light to that of headlights shining in their eyes.
- **Slowed response time** – alcohol slows a driver’s ability to process information and respond to critical driving tasks.
- **Impaired motor skills** – a driver’s eye, hand, and foot coordination is impaired by alcohol.

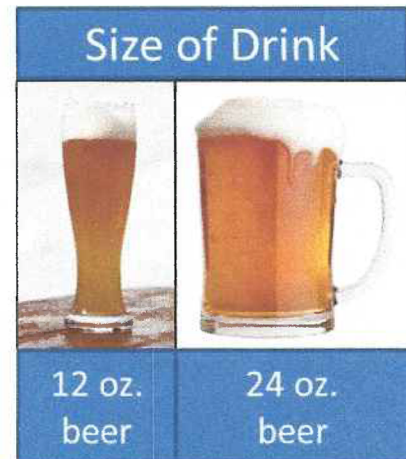
## Effects and Elimination of Alcohol

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## Factors that Affect BAC Level

Two people can drink the same number of drinks, but the percentage of alcohol in the blood depends on a number of factors.

- **Gender** – alcohol affects females more than males. The effects tend to be stronger and last longer.
- **Body weight** – a heavier person will have a lower BAC because the person has more body fluids with which the alcohol will mix.
- **Size of drink** – a larger drink will contain more alcohol and result in a higher BAC than a smaller drink
- **Food** – food can slow the rate at which the alcohol is absorbed, but the alcohol consumed gets into the blood eventually
- **Time spent drinking** – the faster a drinker consumes alcohol, the more quickly BAC will reach its peak
- **Alcohol content** – the more alcohol content in a drink, the higher the BAC will rise



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**Common Signs of the Drinking Driver**

- Turns in a wide radius
- Straddles center or lane marker
- Almost strikes an object
- Weaves
- Drives on shoulder of roadway
- Swerves
- Slow speed
- Stops for no apparent reason
- Follows too closely
- Drifts
- Tire on center or lane line
- Brakes erratically
- Drives into opposing or crossing traffic
- Signals inconsistently
- Responds slowly to traffic signals
- Illegal or abrupt turns
- Rapid acceleration and/or deceleration
- Drives at night with lights off
- Fails to dim high beam headlights



**Effects of Drugs Other than Alcohol on the Driving Task**

**Fact Sheet 11.5 continued**  
**Content Information**

**Effects of Drugs other than Alcohol on the Driving Task**

**Perception** - This involves giving meaning to human senses of vision, hearing, etc. Unless a driver accurately understands what he/she sees, it is impossible to react appropriately. Both amphetamines and cocaine can cause perceptual problems.

**Judgment** - Accurate decisions are based on a driver's ability to assess and judge a given driving situation. Poor judgments often result in collisions.

**Coordination** - Drivers must coordinate hand, eye and foot movements to operate a motor vehicle successfully. Loss of such ability greatly handicaps performance.

**Vision** - Vision is the key to information gathering and processing and safe driving. Visual impairments make it difficult to search, evaluate and execute appropriately.

**Mood** - A driver's mood may cause him/her to take unnecessary risks or be so lethargic as to fail to act correctly in a dangerous situation.

**Effects of marijuana**

Drug most often found in drivers involved in crashes (after alcohol) and because more research data is available on marijuana than other drugs, specific attention is provided. Effects include:

- **Loss of tracking ability** - This is the ability to maintain the vehicle in a given line.
- **Distance judgment** - Following too closely can cause problems.
- **Vigilance** - Not remaining attentive to the driving task can cause a driver to follow too closely, drift into another lane, etc.
- **Divided attention** - Driving is a task which requires constant but changing attention to traffic, roadway and weather conditions, passengers, gauges, etc.

**Mixing alcohol and drugs**

A driver should never drink alcohol while taking other drugs. These drugs could multiply the effects of alcohol or have additional effects of their own. These effects not only reduce the driver's ability to operate a vehicle, but could cause serious health problems, even death.

The key factor to remember is that any change a drug produces may also cause a lessening of driving ability. Drugs should never be mixed with alcohol because of a possible synergistic effect (chemical reaction between two or more drugs that may produce a reaction greater than either drug alone).



**The Causes and Effects of Fatigue**

**Fact Sheet 12.1 continued**  
**Content Information**

**Who is Most at Risk for Drowsy Driving and Warning Signs of Fatigue**

**Drowsy driving - who is most at risk?**

- Drivers who are:
  - Sleep deprived
  - Driving long distances without rest breaks
  - Driving through the night or at other times when they are normally asleep
  - Taking medicine that increases sleepiness
  - Driving alone
  - Driving on long, rural, boring roads
  - Frequent travelers, e.g. business travelers
- Drivers with undiagnosed or untreated sleep disorders
- Young drivers
- Shift workers
- Commercial drivers

**Fatigue warning signs:**

- Difficulty focusing, frequent blinking or heavy eyelids
- Yawning repeatedly or rubbing eyes
- Daydreaming; wandering/disconnected thoughts
- Trouble remembering the last few miles driven; missing exits or traffic signs
- Trouble keeping head up
- Drifting from your lane, following too closely or hitting a shoulder rumble strip
- Feeling restless and irritable

If you notice any signs of fatigue, stop driving and go to sleep for the night or take a 15 – 20 minute nap