

# The harmful effects of blackouts caused by binge drinking

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## Abstract:

A blackout by definition is a period of amnesia, a temporary loss of memory or consciousness, during which the person can engage in normal activities but the brain is unable to form new memories. Many researchers have come to the conclusion that rapid consumption of alcohol (binge drinking) increases the chances of a blackout because it leads to a rapid increase of a person's blood alcohol content (BAC). Some college students drink alcohol with only one thing in mind, to get drunk. A fast way to do this is to binge drink, which they do by playing drinking games. These students participate in events for which they have no recollection. They become aware of missing events after they get reminded by someone else. They put themselves in dangerous situations because they are not mature enough to drink moderately. Binge-drinking college students have awakened in an unfamiliar bed next to a stranger. Some college students lose their lives while driving, fighting, or going for a swim after binge drinking. I have done my research by reviewing published scholarly literature to present valid information on binge drinking and blackouts.

## Introduction:

Amnesia is a temporary loss of memory or consciousness. A blackout is defined as a period of amnesia during which the person can engage in normal activities but the brain is unable to form new memories. Many researchers have come to the conclusion that rapid consumption of alcohol during binge drinking increases the chance of a blackout because that leads to a rapid increase of a person's blood alcohol content (BAC). The hippocampus is a lopsided structure deep in the forebrain involved in processing memories. Alcohol impairs memory formation by disrupting activity in the hippocampus.

Another part of the brain that plays a role in the formation of memory is the medial septum which is also located by the forebrain. The medial septum sends rhythmic excitatory and inhibitory signals to the hippocampus. It produces the theta rhythm which causes rhythmic change in the activity. But once a person becomes excessively intoxicated, alcohol disrupts the theta rhythm by suppressing the output of signals from medial septal neurons to the hippocampus. The medial septum is the central influence in processing information in the hippocampus. Impairing the medial septum blocks memory storage in the hippocampus.

## Results:

Impairments in judgments and impulse control can lead an individual to make hazardous choices during blackouts. The total number of blackouts experienced by students appears to correlate with drinking problems. Many college students are independent for the first time with new freedoms. They take this opportunity to experiment with alcohol and make it their objective to get drunk. In the survey of 100 colleges in the U.S. taken by the Harvard School of Public Health, 27% of students reported blackouts in the past year, up from 25% previously (4).

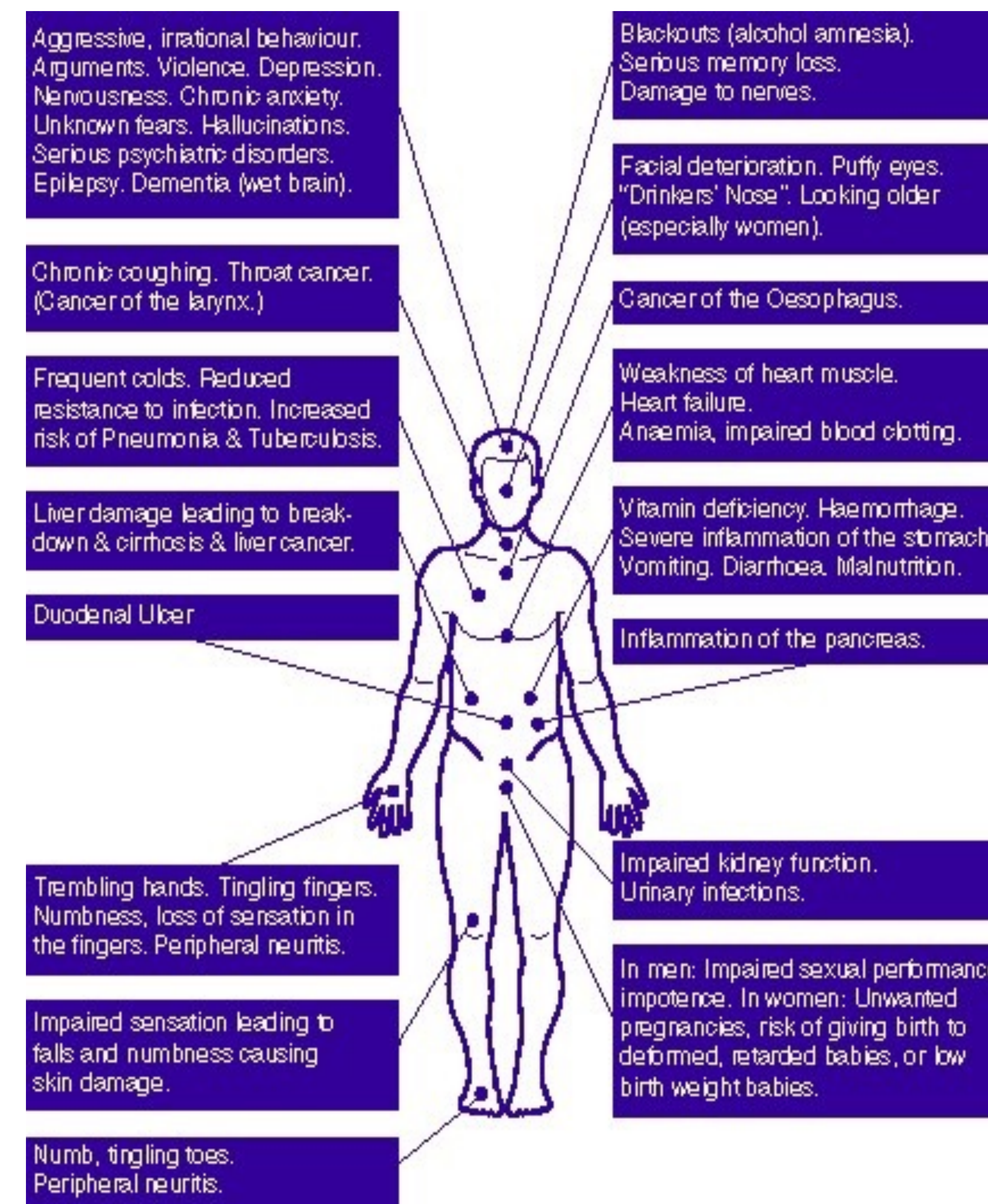


Figure 1: Effects of alcohol



Figure 3: Situations Contributing to Binge Drinking  
[http://www.haverford.edu/psych/alcohol\\_study/alcoholstudy.00.summary.html](http://www.haverford.edu/psych/alcohol_study/alcoholstudy.00.summary.html)

## Method:

My method was to review published scholarly literature.

Large and rapid intake of alcohol can produce either a fragmented or complete (en bloc) blackouts. Many college students only experience fragmented blackouts. As a consequence these students participate in a wide range of salient events for which they have no recollection. They become aware of missing events only after they get reminded by someone else. Students have reported that during these fragmented blackouts they engage in risky behaviors including sexual activity, vandalism, and fighting. Some students have also reported that they have wakened in someone else's bed without any recollection of the previous night. These things occur through reduced inhibitions, which means that these intoxicated students take risks that they might not normally take. They underestimate the chances of having a negative result. As a consequence most of these students are frightened by the occurrence of blackouts but it is not enough to stop them from consuming alcohol rapidly at most events.

The significant increase in blackouts parallels to an increase of heavy episodes of drinking (3). An individual is considered to binge drink after the consumption of four to five drinks in a short period. A third of U.S college students drink alcohol in the form of binge drinking. About 20% of all students in the nation are frequent binge drinkers. Binge drinkers are commonly known as individuals who damage property, assault other people, cause fatal car accidents, and engage in risky activities including unprotected sex. Many females who binge drink become victims of rape. Two thirds of binge drinkers develop alcohol related problems.

## Discussion:

After much research it is evident that some college students do not like to drink leisurely and prefer to binge drink. There is a physiological theory behind this. Most of these college students were prevented from drinking alcohol while living with their parents. Once they arrive at college they feel the need to make up for what they lost because of restrictions at home. There needs to be more research on the behavior of college students to test this theory and determine why they feel the need to binge drink.

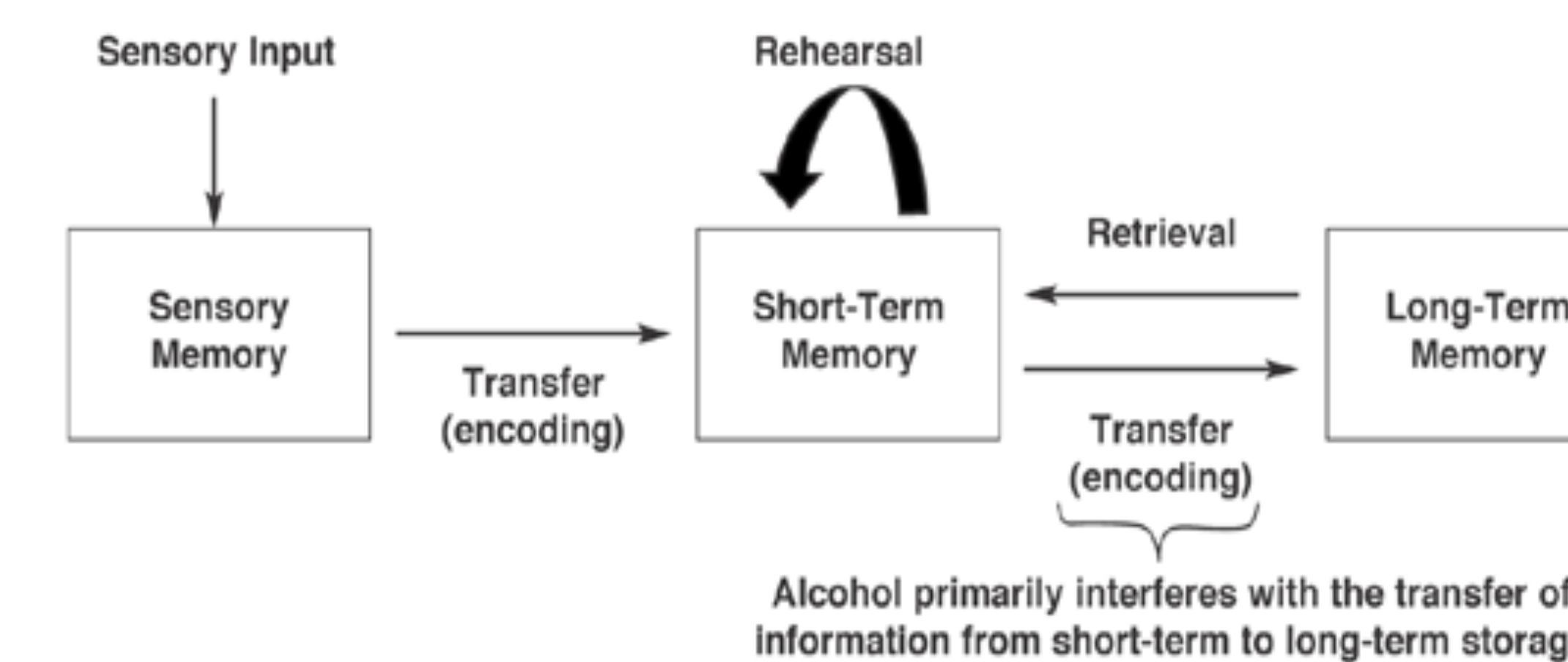


Figure 3 A general model of memory formation, storage, and retrieval based on the modal model of memory originally proposed by Atkinson and Shiffrin (1968). Alcohol seems to influence most stages of the process to some degree, but its primary effect appears to be on the transfer of information from short-term to long-term storage. Intoxicated subjects are typically able to recall information immediately after it is presented and even keep it active in short-term memory for 1 minute or more if they are not distracted. Subjects also are normally able to recall long-term memories formed before they became intoxicated; however, beginning with just one or two drinks, subjects begin to show impairments in the ability to transfer information into long-term storage. Under some circumstances, alcohol can impact this process so severely that, once sober again, subjects are unable to recall critical elements of events, or even entire events, that occurred while they were intoxicated. These impairments are known as blackouts.

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