You are in control

Flying, while fun and exciting, is a precise, demanding, and unforgiving endeavor. Any factor that impairs the pilot's ability to perform the required tasks during the operation of an aircraft is an invitation for disaster.

The use of alcohol is a significant self-imposed stress factor that should be eliminated from the cockpit. The ability to do so is strictly within the pilot's control.

Alcohol avoidance

Ideally, total avoidance of alcohol should be a key element observed by every pilot in planning or accomplishing a flight.

Alcohol avoidance is as critical as developing a flight plan, a good preflight inspection, obeying ATC procedures, and avoiding severe weather.

Department of Transportation (DOT)/ Federal Aviation Administration (FAA) 14 CFR Part 120 - Drug and Alcohol Testing Program Regulations

The FAA drug and alcohol testing regulation applies to pilots who perform flight crewmember duties (directly or by contract) for a domestic commercial air carrier or operator. The FAA's rule defines who is subject to testing, the types of testing, consequences, prohibitions for using drugs or misusing alcohol, and other administrative requirements. The DOT's procedural regulation, 49 CFR part 40, outlines the specimen collection, testing, and verification procedures for all DOT testing. Employees that have a breath alcohol test result confirmed with a concentration of 0.04 or greater alcohol or other alcohol misuse prohibition while performing flight crewmember duties must be immediately removed from duty and referred for education and/or treatment. A breath alcohol test confirmed between 0.02 and 0.039 is not considered a federal testing violation; however, the employee must be temporarily removed from duty until they test below 0.02 or for 8 hours. Safety-sensitive employees must be subject to pre-employment, random, post-accident, random, reasonable cause/suspicion, return-to-duty, and follow-up testing. For more information about the DOT/FAA testing, visit www.faa.gov/go/drugabatement or www.dot.gov/odapc/employee.

General Recommendations

1. As a **minimum**, adhere to all the guidelines of 14 CFR Part 91.17:
   - 8 hours from "bottle to throttle"
   - do not fly while under the influence of alcohol
   - do not fly while using any drug that may adversely affect safety
2. A more conservative approach is to wait 24 hours from the last use of alcohol before flying. This is especially true if intoxication occurred or if you plan to fly IFR. Cold showers, drinking black coffee, or breathing 100% oxygen cannot speed up the elimination of alcohol from the body.
3. Consider the effects of a hangover. Eight hours from "bottle to throttle" does not mean you are in the best physical condition to fly, or that your blood alcohol concentration is below the legal limits.
4. Recognize the hazards of combining alcohol consumption and flying.
5. Use good judgment. Your life and the lives of your passengers are at risk if you drink and fly. Keep in mind that regulations alone are no guarantee that problems won't occur. It is far more important for pilots to understand the negative effects of alcohol and its deadly impact on flight safety.

ALCOHOL USE IN AMERICA

- Over 67.4% of American adults consume alcohol.
- In 2022 23.5% of American adults reported that they engaged in binge drinking in the past month.
- In 2022 11.2% adults had Alcohol Use Disorder in the past year.
- Different alcoholic beverages have different concentrations of alcohol; however, their total alcohol content can be the same. For example, a pint of beer contains as much alcohol as a 5½-ounce glass of table wine. Therefore, the notion that drinking low-concentration alcoholic beverages is safer than drinking hard liquor is erroneous.
- The total alcohol content of any alcoholic beverage can be easily calculated using the following formula: "Proof" divided by 2 = percent pure alcohol by volume.

References

1. Medical Standards and Certification, 14 CFR Pt. § 67.107 (2012).

2. Alejandro Caro-Nuñez T, Chidester T. Literature Review and Recommendations Concerning Alcohol Tolerance Under Part 67. Washington, DC: Office of Aerospace Medicine; 2018. DOT/FAA/AM-18/5.

3. Alcohol Use in the United States. NIH National Institute on Alcohol Abuse and Alcoholism. https://www.niaaa.nih.gov/alcohols-effects-health/alcohol-topics/alcohol-facts-and-statistics/alcohol-use-united-states-age-groups-and-demographic-characteristics. Updated 2023. Accessed February 7, 2024.

4. Dubowski KM. Absorption, distribution and elimination of alcohol: highway safety aspects. J Stud Alcohol. 1985;10:98–108.

Provided by
Aerospace Medical Education Division, AAM-400

To obtain copies of this brochure online:

http://www.faa.gov/pilots/safety/pilotsafetybrochures/

or contact:

Federal Aviation Administration
Civil Aerospace Medical Institute
AAM-400
P.O. Box 25082
Oklahoma City, OK 73125
(405) 954-4831

OK-24-0259 (2-24)

Federal Aviation Administration

Alcohol & Flying

A DEADLY COMBINATION

Alcoholic beverages, used by many to "unwind" or relax, act as a social "icebreaker," a way to alter one's mood by decreasing inhibitions. Alcohol consumption is widely accepted, often providing the cornerstone of social gatherings and celebrations. Along with cigarettes, many adolescents associate the use of alcohol as a rite of passage into adulthood.

While its use is prevalent and acceptable in our society, it should not come as a surprise that problems arise in the use of alcohol and the performance of safety-related activities, such as driving an automobile or flying an aircraft. These problems are made worse by the common belief that accidents happen "to other people, but not to me." There is a tendency to forget that flying an aircraft is a highly demanding cognitive and psychomotor task that takes place in an inhospitable environment where pilots are exposed to various sources of stress.

Hard facts about alcohol

- It's a sedative, hypnotic, and addicting drug.
- Alcohol quickly impairs judgment and leads to behavior that can easily contribute to, or cause accidents.

The erratic effects of alcohol

- Alcohol is rapidly absorbed from the stomach and small intestine, and transported by the blood throughout the body. Its toxic effects vary considerably from person to person, and is influenced by variables such as gender, body weight, rate of consumption (time), and total amount consumed.
- The average, healthy person eliminates pure alcohol at a fairly constant rate. That is about ⅓ to ½ oz. of pure alcohol per hour. This is equivalent to the amount of pure alcohol contained in any of the popular drinks listed in Table 1. This rate of elimination of alcohol is relatively constant, regardless of the total amount of alcohol consumed. In other words, whether a person consumes a few or many drinks, the rate of elimination of alcohol from the body is essentially the same. Therefore, the more alcohol an individual consumes, the longer it takes the body to get rid of it.
- Even after complete elimination of all of the alcohol in the body, there are hangover effects that can last 48 to 72 hours following the last drink.
- The majority of adverse effects produced by alcohol relate to the brain, eyes, and inner ear which are three crucial organs to a pilot.

Type of Beverage	Typical Serving (ounces)	Pure Alcohol Content (ounces)
Table Wine	4	.48
Light Beer	12	.48
Aperitif Liquor	1.5	.38
Champagne	4	.48
Vodka	1	.50
Whiskey	1.25	.50

Table 1. Amount of alcohol in various alcoholic beverages.

- Brain effects include impaired reaction time, reasoning, judgment, and memory. Alcohol decreases the ability of the brain to make use of oxygen. This adverse effect can be magnified as a result of simultaneous exposure to altitude, characterized by a decreased partial pressure of oxygen.
- Visual symptoms include eye muscle imbalance, which leads to double vision and difficulty focusing.
- Inner ear effects include dizziness, and decreased hearing perception.
- If such other variables are added as sleep deprivation, fatigue, medication use, altitude hypoxia, or flying at night or in bad weather, the negative effects are significantly magnified.

Studies of how alcohol affects pilot performance

- Pilots have shown impairment in their ability to fly an ILS approach or to fly IFR, and even to perform routine VFR flight tasks while under the influence of alcohol, regardless of individual flying experience.
- The number of serious errors committed by pilots dramatically increases at or above concentrations of 0.04% blood alcohol. This is not to say that problems don't occur below this value. Some studies have shown decrements in pilot performance with blood alcohol concentrations as low as the 0.025%.

Hangovers are dangerous

A hangover effect, produced by alcoholic [1] beverages after the acute intoxication has worn off, may be just as dangerous as the intoxication itself. Symptoms commonly associated with a hangover are headache, dizziness, dry mouth, stuffy nose, fatigue, upset stomach, irritability, impaired judgment, and increased sensitivity to bright light. A pilot with these symptoms would certainly not be fit to safely operate an aircraft. In addition, such a pilot could readily be perceived as being under the influence of alcohol.

Alcohol tolerance

Alcohol tolerance occurs when the brain and body change over time to compensate for the sedative effects of alcohol. Tolerance is dangerous. Tolerant individuals can still perform complex tasks at high BACs despite cognitive impairment.

Under 14 CFR Part 67, tolerance is evidence of alcohol dependence.[1] It can develop with daily or periodic heavy or binge drinking. Tolerant individuals must drink more in order to get the same effect they used to get with fewer drinks. For example, non-tolerant individuals have difficulty with complex tasks at a blood alcohol concentration (BAC) of 0.08, while tolerant individuals may perform the same tasks at much higher BAC levels (e.g., 0.16)[2]. However, tolerant individuals only "appear" to maintain cognitive function and motor skills at higher levels of blood alcohol. Actual cognition and judgment are still impaired.[2,4]

The National Institute on Alcohol Abuse and Alcoholism (NIAAA) argues that alcohol related problems (including tolerance) increase for men who drink 5 or more standard drinks in a day (or more than 14 per week) and women who drink 4 or more in a day (or more than 7 per week).[3] The medical literature shows that individuals who have minimal observable effects at BACs of 0.20% or higher are tolerant.[4] Higher body weight is no protection against tolerance or dependence. Airmen with higher body weight may actually show tolerance or dependence at BACs as low as 0.15%.[2,4]