

# Facts for Athletes About Alcohol

- Alcohol promotes water loss and depresses the production of the antidiuretic hormone. Alcohol increases urination, which increases loss of body fluids and thirst. For each 10 gm of alcohol consumed (approximately one drink), 4 oz of body fluid is lost.
- Water loss caused by alcohol consumption also involves the loss of important minerals such as magnesium, potassium, calcium and zinc. These minerals are vital to the maintenance of fluid balance; these minerals are also vital to nerve and muscle action and coordination.
- Alcohol interferes with the *metabolism* (breakdown) of fat and glucose. Fats and glucose are diverted into making body fat, which accumulates in the liver cells. Fat can accumulate in the liver after a single night of heavy drinking. The *synthesis* (production) of fatty acids is accelerated as a result of the liver's exposure to alcohol.
- The presence of alcohol alters amino acid metabolism in the liver cells; amino acids are the building blocks of proteins. Protein deficiency can develop in heavy drinkers due to the depression of protein synthesis in the cells and a poor diet.
- Heavy alcohol use can interfere with the intestinal cells' ability to absorb thiamin, folacin, and vitamin B12. Nutrient deficiencies are almost an inevitable consequence of heavy drinking because alcohol directly interferes with the body's use of nutrients, thus making important water soluble vitamins ineffective even when present in adequate amounts. (Vitamin B12 is important for the breakdown of carbohydrates and fat).
- Alcohol use can raise blood pressure.
- Two thirds of the calories in beer are alcohol derived (7 Kcal/gm). These calories are used primarily for heat and are not stored as muscle glycogen.
- The use of alcohol causes impaired gluconeogenesis and lowers resting muscle glycogen levels.
- Alcohol use results in decreased exercise time to exhaustion and decreased performance in middle-distance running events.
- Athletes engaged in activities that require precise fine motor control have a perception of reduced tension and increased relaxation as a result of alcohol; however, the actual effect is decreased eye-hand coordination and impaired judgment and tracking.
- Metabolism of alcohol interferes with the breakdown of lactic acid and can result in a lactic acid build-up of in the blood. This interference occurs when alcohol is consumed right before or after strenuous exercise.
- Alcohol is a vasodilator; it causes the blood vessels near the surface of the skin to expand and thereby promote heat loss and lower body temperature.
- The use of alcohol the evening prior to an athletic event may be detrimental to performance. One study showed that airline pilots performed consistently worse in task requiring attention and visual-motor coordination skills 14 hours after ingesting enough alcohol to reach a .10-.12 BAC (blood alcohol concentration). This BAC is reached when a 140lb. woman consumes 4-5 drinks in one hour.

**For More Information Contact:  
GMU Substance Abuse Programs & Services  
703-993-3687**