



Nutrition

Alcohol Consumption and Its Effects On Performance

Dawn Weatherwax, ATC, RD/LD, CSCS

Nutrition and hydration are two of the keys to optimal performance. Alcohol is a poor nutrient source for a pre-game meal or for hydration. Alcohol is known to slow down one's ability to react to an opponent or object 72 hours following alcohol intake (2). Precision, equilibrium, hand-eye coordination, judgment, ability to process information, focus, stamina, strength, power, and speed are all negatively effected for many hours after blood alcohol levels return to 0.0% (1).

Proper hydration before, during, and after practice/event along with all-day hydration is critical to preventing injuries, creating an optimal environment for building muscle, losing body fat, maximizing energy levels, transporting and absorbing nutrients, and ridding the body of toxins and by-products (2). If an athlete is thirsty, they may have already lost 1- 2% of body weight through dehydration (4). Performance can be decreased up to 10-20% at this

level. Alcohol can cause the body to lose 3% more body fluid in a 4-hour period, leading to dehydration even quicker (5).

In the field of performance, recovery from exercise is dependant on replacing the carbohydrates used up during activity (glycogen synthesis). Consuming at least 30-60g of carbohydrates with 6-10g of protein has been proven to help replace needed carbohydrates and aid in recovery (9). The faster the body recovers, the easier it is to perform at the same optimal levels on a day-to-day basis. Drinking alcohol after exercise for glycogen recovery is unclear, but alcohol may displace carbohydrate intake from optimal recovery—in laymen terms, alcohol calories *MAY* replace the carbohydrate calories usually eaten after exercise leading to improper recovery (3).

Athletes train long hours to perform well. Injuries are repercussions an athlete could incur during practice or competition. Alcohol can cause increased swell-



ing after a game if an injury is sustained because alcohol causes the blood vessels to dilate. Alcohol can also mask pain. For those who are familiar with injuries, the more swelling in an injured area, the longer it could take to recover and get back to optimal playing form. In addition, if the athlete is already taking anti-inflammatory medications or pain relievers, drinking alcohol can increase the risks of stomach irritation and internal bleeding.

Having a certain body fat to muscle mass ratio is related to athletic performance. Research has shown that increased muscle mass increases strength, power, and agility (6,7). However alcohol (ethanol) is one of the worst nutrients you can consume to improve body fat to muscle mass ratio. The carbohydrates found in alcoholic beverages are not converted into glucose and are used to make fatty acids that are stored as fat mainly in the liver. Alcohol has also been shown to increase fat composition. The body prefers to use alcohol as a fuel source when consumed. If you eat high-fat foods when you consume alcohol the fat from these foods are stored as fat. Alcohol also stimulates the appetite and encourages extra intake of calories the body does not need (8).

Table 1. Suggestions to minimize effects of alcohol on performance

1. Avoid excessive drinking.
2. Agree to a limit before drinking.
3. Avoid drinking games.
4. Don't drink alcohol on an empty stomach.
5. Choose low alcoholic beverages.
6. For every serving of alcohol, drink 8-12oz of water, juice, or non-alcoholic beverage.
7. Continue to drink non-alcoholic beverages well after consuming alcohol. ~ 24-72oz of water if hydrated between each drink.
8. Avoid social drinking at least 72 hours before a practice/event.
9. After practice/event re-hydrate properly before consuming any alcohol. For every one pound lost consume 20-24oz of fluids with 300-400mg sodium (i.e. V8 Juice & water, 2oz pretzels with water, Gatorade).
10. Before drinking any alcohol after a workout/event, consume at least 6-10g protein and 30-60g of carbohydrates (Yogurt & fruit, bagel with 2 T natural peanut butter) within the first 30 minutes followed by a well balanced meal in the next 1 ½ hours.
11. Avoid drinking alcohol at least 24-36 hours after experiencing extreme soreness/aches/pains, noticeable bruising or injury.
12. Do not drink alcohol while taking anti-inflammatory drugs. This includes Tylenol and ibuprofen.
13. Keep bi-monthly records of body fat to muscle mass ratios
14. As part of the sports physical ask questions about alcohol abuse. Athletic Trainers, Strength Trainers, Coaches, Physicians and Athletic Administrators can all address this issue. (Please do not exclude high school athletes).

Conclusion

Alcohol and performance do not mix. Alcohol inhibits every aspect of athletic performance. The best choice an athlete can do is avoid alcohol altogether; however, just saying “no” is not a viable option when the majority of athletes want to say “yes”. Table 1 lists some suggestions to minimize the effects of alcohol on performance.

References

1. American College of Sports Medicine. (2000). Alcohol and athletic performance (Current Comment). Indianapolis, IN.
2. Burke L. (1995). *The Complete Guide to Food for Sports Performance (2nd Ed.)*. Sydney: Allen and Unwin.

3. Burke LM, Collier GR, Broad EM, Davis PG, Martin DT, Sanigorski AJ, Hargreaves M. (2003). Effect of alcohol intake on muscle glycogen storage after prolonged exercise. *Journal of Applied Physiology* 95:983-990.

4. Greenleaf JE. (1992). Problem: thirst, drinking behavior and involuntary dehydration. *Medicine & Science in Sports & Exercise*, 24:645-656

5. Shirreffs SM. (1997). Restoration of fluid balance after exercise-induced dehydration: Effects of alcohol consumption. *Journal of Applied Physiology* 83(4): 1152-1158.

6. Spaniol FJ. (1997). Predicting throwing velocity in college baseball play-

ers (Abstract). *Journal of Strength and Conditioning Research*, 11(4): 286.

7. Spaniol FJ. (2002). Physiological predictors of bat speed and throwing velocity in adolescent baseball players (Abstract). *Journal of Strength and Conditioning Research*, 16(4): 1-18.

8. Tremblay A, St-Pierre S. (1996). The hyperphagic effect of a high-fat diet and alcohol intake persists after control for energy density. *American Journal of Clinical Nutrition*, 63:479-82.

9. Wadler G, Hainline B. (1989). *Drugs and the Athlete*. Philadelphia, Davies.

About the Author

Dawn Weatherwax is a Registered/Licensed Dietitian with a specialty in Sports Nutrition and Founder of Sports Nutrition 2Go. She is also an Athletic Trainer with a Certification in Strength and Conditioning from The National Strength and Conditioning Association. Therefore, she brings a comprehensive and unique understanding of the athlete's body, and its nutritional needs, to those interested in achieving specific performance goals and optimal health. Weatherwax is also the author of The Official Snack Guide for Beleaguered Sports Parents and The Complete Idiot's Guide to Sports Nutrition. She is an Official Speaker for the Gatorade Sports Science Institute and on the approval speaker list for the NCAA. Dawn is an active member of the American Dietetic Association (ADA), Sports, Cardiovascular, and Wellness Nutritionists Dietetic Practice Group (SCAN), American College of Sports Medicine (ACSM), National Strength & Conditioning Association (NSCA), IDEA Health & Fitness Association, National Athletic Training Association (NATA), & Greater Cincinnati Athletic Training Association (GCATA). ▲