

Alcohol Consumption Behaviors Among Collegiate Athletes

David J. Dziedzicki, MS, ATC; Lindsey E. Eberman, PhD, ATC, LAT; Leamor Kahanov, EdD, LAT, ATC; Heather Mata, MPAS, PA-C; Andrew J. Niemann, MS, ATC; and Heather M. Adams, MS, ATC • Indiana State University

Alcohol consumption among athletes has physiologic and psychosocial effects that may have clinical implications. College student athletes are at an increased risk for binge drinking behaviors and alcohol-related injuries.¹ The literature suggests that

collegiate student athletes are motivated to drink to relieve stress related to sport participation, and they do not change behaviors with increased education.¹ Negative physiologic effects from alcohol consumption occur in the general population,²⁻⁹ and sport performance may be adversely affected in athletes.¹ Alcohol acts as a diuretic,^{5,10} causing frequent urination and subsequently hypohy-

dration. Alcohol also negatively impacts quality of sleep,^{11,12} resulting in fatigue and limited cognitive and physical recovery.¹ Athletic trainers and therapists should be able to recognize signs and symptoms of alcohol abuse as well as associated physiologic responses during athletic competition.

Research on alcohol consumption among athletes has documented the type of alcohol

consumed, when and where it was consumed, and the impact of alcohol education on an athlete's decision to consume alcohol.¹³ The purpose of this report is to review the physiologic and psychosocial effects of alcohol consumption on athletes and to help athletic trainers and therapists identify athletes who are at risk for alcohol abuse.

Alcohol Behaviors of Athletes

Numerous factors influence an athlete's decision to engage in risky drinking behaviors. The literature suggests that athletes and students perceive alcohol consumption to be a social norm and that college is synonymous with alcohol consumption.⁶ Athletes also tend to use alcohol as an escape or a coping mechanism to manage increased stress.¹⁴ Additional influences include overestimation of peer consumption and where a student athlete resides (i.e., on-campus residence hall or off-campus housing).¹⁴ Athletes engage in riskier behaviors than the average college student, which may be a result of greater access to alcohol, peer approval, and direct offers from other athletes.¹⁴ No evidence is available to differentiate level of alcohol consumption among athletes who participate in different sports, but athletes are known to consume more alcohol during the off-season.¹³ Clinicians should be aware of off-season behaviors and recognize a possible need for referral when athletes miss

KEY POINTS

▶ Alcohol has negative physiologic implications that can lead to performance decrements.

▶ Self-reported alcohol consumption behaviors may be influenced by gender, fear of breach in confidentiality, win/loss record, and embarrassment/anxiety.

▶ Veisalgia (hangover) may be manifested as headache, nausea, vomiting, dry mouth, thirst, an inability to focus, decreased cognitive performance, and altered spatial awareness.

team activities, treatments, or classes due to excessive alcohol consumption.

Physiologic Effects of Alcohol

Research has demonstrated that the presence of a low level of alcohol in the liver impairs the re-synthesis of glycogen.⁶ A 50% reduction in the efficiency of liver function can adversely affect exercise recovery.¹⁵ Alcohol may also adversely affect the ability to fight infection, due to altered inflammatory neutrophil, leukocyte, and microphage production.⁷ Ultimately, alcohol consumption can impair liver function to an extent that leads to cell death. A lack of liver efficiency may place athletes at increased risk for illness and reduced performance capabilities.⁷ Clinicians may need to discuss alcohol consumption behaviors with an athlete who presents symptoms of a systemic illness, which may be linked to a weakened immune system.

A clear association exists between alcohol consumption and neurocognitive function.^{4,6,7} Alcohol's depressant effects significantly slow the ability of the central nervous system (CNS) to process information, both in terms of long-term and short-term function.⁷ CNS dysfunction may lead to poor decision making and potential injury or death. Football players who habitually consume alcohol increase risk for sport-related injury up to 50%.³ A marked increase in nonsport injuries, due to amplified aggression and poor decision making, presents a threat to the health and safety of athletes. Athletes who sustain alcohol-related injuries should be referred for psychosocial intervention. Most colleges and universities provide counseling services at no charge to students. A referral policy should be established, along with documented procedures to be implemented when needed.

Alcohol consumption has numerous physiologic effects (Table 1).^{3,4,6,16} The problem of binge drinking on college campuses has raised awareness of alcohol abuse.⁸ Excessive alcohol use may even cause cardiac dysfunction.⁷ Chronic alcohol consumption can have negative effects on heart rhythm, and a single heavy alcohol dose can cause brief cardiac arrhythmias. Moderate to heavy consumption of alcohol is the second greatest risk factor for development of hypertension. Young people, particularly athletes, are likely to ignore long-term health implications, probably due to a sense of invincibility.¹⁴ Although research evidence pertaining to the effectiveness of preparticipation screening for

identification of cardiac dysfunction is inconclusive,¹⁷ documentation of baseline status (e.g., auscultation and/or echocardiogram) may provide a valuable comparison standard for follow-up assessment results.

Veisalgia

Signs and symptoms of veisalgia (alcohol hangover)¹⁸ are a consequence of alcohol's diuretic properties.^{5,10,13} Hydration plays a crucial role in athletic performance.¹⁰ Athletes who participate in a hypohydrated state cannot perform at optimal levels.⁷ Athletes often report for preseason practice sessions in a hypohydrated state.¹⁹ Thus, athletes may be competing in a chronically hypohydrated state, which is likely to have negative performance effects.^{20,21} Consuming alcohol in excessive quantities can create or exacerbate hypohydration.⁶ Available water is shunted to the critical organs, thereby limiting muscle performance capabilities. Lack of sufficient fluid availability results in veisalgia-related headache.²² The loss of fluid decreases brain tissue volume, which causes deviation in the brain's resting position within the cranium, thereby causing headache.¹⁴ Long-term accommodation to prolonged exertion in a hypohydrated state can also cause other physiologic changes, including desensitization to fluid deprivation (i.e., decreased thirst).¹⁵

Frequent urination causes potassium and sodium loss that can adversely affect muscle function,^{18,23} as well as cognitive performance, spatial awareness, and occupational performance.⁷ Impaired cognitive function negatively influences an athlete's sport performance capabilities⁶ and may increase risk for time-loss injury during competition or a practice session.²⁴

Veisalgia has been associated with a decrease in restful sleep, resulting in fatigue from a lack of rapid eye movement (REM) sleep.¹¹ When alcohol is consumed in excessive quantities, the actions of chemical mediators that control REM sleep are suppressed.¹¹ REM sleep is important for recovery from exertion and/or injury. When an athlete performs physical activity in a fatigued state, the ability to process information is slowed.⁷ Athletic trainers and therapists should consider withholding athletes from participation who exhibit veisalgia symptoms.

Summary

Alcohol consumption negatively influences liver, brain, and muscle function. The potential for cardiac arrhyth-

TABLE 1. PSYCHOLOGICAL AND PHYSIOLOGICAL CHARACTERISTICS OF EXCESSIVE ALCOHOL USE WARRANTING REFERRAL^{3,4,6,16}

Body System	Symptom or Condition
Psychological	Aggressive, irrational behavior Violence Depression Nervousness Alcohol dependence
Immune	Reduced resistance to illness/infection
Endocrine/Exocrine	Liver damage
Digestive	Cancer of the throat or mouth Ulcer Malnutrition Gastrointestinal dysfunction Vitamin deficiency Pancreatitis
Nervous	Hand tremors Parasthesia in the hands/feet Neuralgia
Cardiovascular	Heart disease/failure Bleeding disorders
Reproductive	Decrease sexual performance Irregular pregnancy and low birth weight babies
Other	Breast cancer Premature aging

mias, dehydration, and impaired sleep patterns can present long-term health risks. Athletic trainers and therapists should educate athletes about the adverse health effects of excessive alcohol consumption. ■

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David Dzedzicki is an alum of Indiana State University and currently works as an Athletic Trainer with Ohio Health System at Worthington Kilbourne High School in Columbus Ohio.

Lindsey E. Eberman is an assistant professor and the Post-Professional Athletic Training Education Program Director in the Department of Applied Medicine and Rehabilitation at Indiana State University in Terre Haute, IN.

Leamor Kahanov is the Chair of the Department of Applied Medicine and Rehabilitation at Indiana State University in Terre Haute, IN.

Heather Mata is an associate professor and the Physician Assistant Studies Program Director in the Department of Applied Medicine and Rehabilitation at Indiana State University in Terre Haute, IN.

Andrew J. Niemann is an alum of Indiana State University and currently works as an Athletic Trainer and Instructor at Iowa Wesleyan College in Mount Pleasant, IA.

Heather M. Adams is an athletic training instructor in the Department of Applied Medicine and Rehabilitation at Indiana State University in Terre Haute, IN.

Tricia Turner, PhD, ATC, University of North Carolina at Charlotte, is the report editor for this article.

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