UC San Diego Athletic Performance Nutrition Bulletin

Alcohol and Athletic Performance

It has been estimated that the average American college student drinks more than 34 gallons of alcohol every year. Alcohol may provide as much as 20 percent of calories in the diet of some drinkers. On the surface, alcohol consumption seems harmless and a normal part of the college experience. However, research overwhelmingly suggests that alcohol use and athleticism do not go hand in hand. Although it may not be realistic to eliminate the use of alcohol altogether, intensive efforts should be made in this direction because of the detrimental side effects listed below.

DEHYDRATION

Alcohol is a powerful diuretic that can cause severe dehydration and staggering electrolyte imbalances. Severe dehydration can require several days to a week for full recovery. While dehydrated, an athlete is at greater risk for musculoskeletal injuries including: cramps, muscle pulls, and muscle strains. Also, dehydration can lead to severe brain impairment and even death when coupled with extreme temperatures and intense practices (most notable during two-a-days). Dehydration leads to decreased appetite and muscle wasting (you lose muscle mass). A loss of muscle mass results in a decrease in strength and performance. Decreased food consumption associated with appetite loss will result in fatigue and over training, which may further heighten injury risk.

TESTOSTERONE

Alcohol, when consumed in amounts typical with binge drinkers (most common among college athletes), can dramatically decrease serum testosterone levels. Decreases in testosterone are associated with decreases in aggression, lean muscle mass, muscle recovery and overall athletic performance. This can also cause testicular shrinkage, breast enlargement, and decreased sperm development in males. In females, this may cause an increase in the production of estradial, (a form of estrogen) which may increase the risk of breast cancer.

PERFORMANCE

Alcohol will also impair reaction time and mental acuity for up to several days after consumption. The delayed reaction time and reduced mental acuity is of severe consequence to the athlete. Performance will be reduced and injury risk increased. Alcohol consumption will cause a decrease in hand-eye coordination and will impair judgment. Alcohol also interferes with lactic acid breakdown and can result in increased soreness after exercise. Alcohol can also cause nausea, vomiting, and drowsiness for days after consumption.

FAT STORAGE

Alcohol has seven calories per gram. Fat has nine calories per gram. Alcohol is stored

much like fat in the body. Also, alcohol deaminates (destroys) amino acids and stores them as fat. Alcohol consumption, therefore, increases fat storage and adversely effects body composition (increase % body fat). Powerful energy pathways (like glycolysis) are impaired and large amounts of lactic acid are produced, this results in decreased energy, decreased muscle recovery, and increased muscle soreness. Also, alcohol is usually consumed in addition to the person's normal food intake. Since alcohol has seven calories per gram these extra calories can add up really fast increasing the persons bodyweight and percent body fat..

NUTRITION

From the standpoint of bodily health, alcohol can have deleterious effects on the body. Fatty liver, fibrosis, cirrhosis (irreversible liver damage) and gout are common side effects of chronic binge drinking. Alcohol over stimulates cells in the lining of the stomach that produce acid. Increases in acid production are associated with heartburn and ulcer development. Intestinal cells fail to absorb micronutrients (vitamins and minerals), which can lead to electrolyte imbalances and vitamin deficiencies. Alcohol consumption impairs the body's mechanisms that control blood glucose and may result in hypoglycemia. This may cause serious injury even if it doesn't last long because it causes the brain and other body tissues to be deprived of glucose needed for energy and normal function. Hypoglycemia is a common cause of low energy on the field and in the classroom.

SOCIAL

Alcohol acts as a central nervous system depressant and can impair judgment leading to injuries (both to other people and oneself). Alcohol use has been associated with numerous homicides, suicides, fatal auto accidents, and fights resulting in incarceration. Decreased impairment of judgment and decreased inhibition (ability to say, "NO") has resulted in numerous cases of date rape and other gender related crimes.

LONG-TERM USE

Long-term alcohol use may lead to weakened heart muscle, impotency, altered brain and nerve functions, elevated triglycerides, fat deposits in the liver, abnormalities in blood-clotting, pancreatitis, liver failure, vitamin deficiencies, skin abnormalities, and even **DEATH!!!!!**

As you can see, alcohol prevents athletes from reaching their ultimate playing potential. If one or more players on a team were to be in this condition during the game, this can have negative effects on the team as a whole. Every member of the team needs to play at his best at all times in order to have a team of champions. Don't let alcohol abuse be the reason you don't play at your best!

Sleep

Alcohol has a detrimental effect on both the quality of sleep and on daytime attention. Sleep problems are common in alcoholics and also in some people who have completely stopped drinking. The effects of alcohol on sleep and attention are complicated to define and have considerable variability in individuals.

Alcohol seems to accelerate falling asleep, at least in subjects who do not tend to fall asleep immediately. The negative effects arise later and affect the quality and duration of sleep. Sleep is a complex phenomenon in which there are alternating phases of deep sleep, called paradoxical or REM sleep during which the subject dreams, and slow wave sleep. Undisturbed progression of

these two phases of sleep is essential for an individual's well being. Alcohol disturbs or interrupts the sequence of paradoxical sleep and light sleep. Thus alcoholics and some people who have stopped drinking complain about disturbed and fragmented sleep, frightening dreams and insomnia.

The disruptive effects of alcohol last well into the night, even when alcohol has been eliminated. This is not a phenomenon specific to alcohol, it is seen with other sedative products. Snoring is abnormally frequent after taking alcoholic drinks in the evening before going to bed. This is due to the relaxing effects of alcohol on the pharyngeal muscles.

Daytime repercussions of alcohol's effects on sleep

Disturbed sleep or sleep deprivation exacerbate the sedative effects of alcohol during the day. Alcohol consumed late in the evening will noticeably reduce the performance of a subject (attention, dexterity,...) during the following morning. By producing an accumulation of nights of poor sleep, alcohol can disrupt the normal sleep/wake cycle, which is also essential for health and well being. Hence the negative effects of alcohol can have repercussions on daytime performance.

Alcohol and attention

The sedative action of alcohol has variable degrees of effect on attention, reducing it and producing diminished performance. This action is particularly noticeable in subjects who lack sleep or who tend to be lethargic. Alcohol seems to reduce the ability of an individual to waken, even if consumed in moderate amounts, to the point where driving ability is affected, not just in the hours after consumption, but sometimes for days afterwards.

For the author of this information and other such related issues go to http://www.sportsnutrition4u.com

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