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Effect of alcohol on mental and physical health of a sports person

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Abstract

Alcohol consumed by human clearly produced adverse health consequences. The effect of alcohol use appears to depend on the characteristics of the person consuming the alcohol in adolescence and young adulthood, emphasize is placed on increased rates of accidents and suicidal, mortality. In middle age, breast cancer risk and risk for developing osteoporosis and other discourses. Use of alcohol along and in combination with psychoactive drugs present special problems for older women. Effect of alcohol is reviewed with respect to gender differences in cardiovascular, hepathological and neuropath logical as well as with respect to HIV/AIDS. Psychiatrist combidity and domestic violence and also discussed.

Keywords: Alcohol, Mental, Physical health, Sports person

1. Introduction

How alcohol affects a person depends on the amount consumed, the environmental context, and individual differences in tolerance. While a small amount of alcohol consumed daily may have a protective effect on the cardiovascular system, chronic heavy alcohol use is associated with a wide range of physiological, physically and sociological negative outcomes, which account for approximately 100,000 deaths yearly in the United States. The fitness-oriented individual should be aware of the effects of alcohol on physical performance. Acutely, alcohol can cause negative effects on motor skills and physical performance. Chronically, alcohol abuse may eventually impede physical performance; individuals diagnosed with alcohol dependence have displayed varying degrees of muscle damage and weakness. Alcohol abuse is at least as prevalent in the athletic community as it is in the general population; in fact, the majority of athletes have begun drinking by the end of high school. Both male and female college students have higher rates of binge drinking than non-athletes, and drinking five or more drinks on any one occasion affects the brain and body for several days. Alcohol has been described as a performance impairing drug. Exercise is a complex activity utilizing many of the body's organ systems; alcohol exerts an effect on most of these systems, including the central nervous system, muscle energy stores and the cardiovascular system. The effects of alcohol on a person depend on the amount consumed and individual tolerance. Some studies show that a small amount of certain kinds of alcohol (namely wine) may have a protective effect on the cardiovascular system, but even a few drinks can nullify your hard work by erasing the effects of your workouts, reducing your endurance, and compromising your mental fortitude.



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2. Can alcohol affect sports performance?

Fitness experts give the lowdown on whether even small amounts of alcohol can affect your sporting and exercise efforts. It doesn't matter whether you're a casual exerciser, in the gym every day, or compete in regular matches or events, anyone who cares about playing sport or keeping fit should understand the effects alcohol can have on their performance. Not having a balanced approach to alcohol could be what gets in the way of you reaping the rewards from all the work you've put in. Figures from Sport England show that more people are taking part in sport than they used to. During the year to April 2014, 15.6 million people aged 16 years and over in England played sport at least once a week. That's an increase of more than 1.7 million since 2005/6 – the first year of the survey (1). At the same time, latest figures from the NHS show that among adults who had drunk alcohol in the last week, 55 per cent of men and 53 per cent of women drank more than the lower risk guidelines (2). So we're getting more active, but is this move to a healthier lifestyle counteracted by our alcohol consumption?

- **Alcohol use impairs muscle growth** – Not only does working out under the influence increase your likelihood of injury, but it can also impede muscle growth. Long-term alcohol use diminishes synthesis, resulting in a decrease in muscle growth. Even short-term alcohol use can affect your muscles.
- **Alcohol dehydrates your body** – If you want to optimize your athletic performance, then you want your recovery from sore muscles to be as fast as possible. Alcohol has been shown to slow muscle recovery because it is a powerful diuretic that can cause dehydration and electrolyte imbalances. When dehydrated, an athlete is at a greater risk for cramps, muscle pulls, and muscle strains.
- **Alcohol prevents muscle recovery** – Getting enough rest is essential to building bigger and stronger muscles. However, because drinking alcohol negatively affects your sleep, your body is robbed of a chemical called human growth hormone, or HGH, when you drink. HGH plays an integral role in building and repairing muscles, but alcohol can decrease the secretion of HGH by as much as 70 percent. Additionally, when alcohol is consumed in amounts typical with binge drinkers, it can reduce serum levels, a biomarker that is measured by the tracker. Decreases in testosterone are associated with decreases in lean muscle mass and muscle recovery, which can impair performance.
- **Alcohol depletes your energy** - After alcohol is absorbed through your stomach and small intestine and moves into your cells, it can disrupt the water balance in your body. An imbalance of water in your muscle cells can hamper their ability to produce adenosine triphosphate (ATP), which provides the fuel that is necessary to help your muscles contract. A reduction in your body's ATP can result in a lack of energy and loss of endurance.
- **The effects of alcohol on memory: Performing** your best involves learning plays or strategies for an event. Alcohol impairs the functioning of the hippocampus, a part of your brain that is vital to the foundation of memories. If you can't form new memories, you can't learn and store information.
- Creating memories is a complex process that takes a long time, and many memories are established even when you're not thinking about them. In fact, the majority of memory foundation happens when you sleep. Alcohol disrupts the sequence of the duration of your sleep cycle (even if you drink up to six hours before you go to sleep!), which reduces your brain's ability to process information.
- **The effects of alcohol on nutrition:** Alcohol has lots of calories (about 7 per gram), but your muscles are unfortunately not able to use these calories for fuel. Alcohol calories are not converted to glycogen, a form of stored and are consequently not a good source of energy for your body during exercise. Your body instead treats alcohol as fat, converting the sugar from alcohol into fatty acids. As a result, alcohol consumption increases fat storage and can adversely affect your percentage of body fat. Not only is alcohol devoid of protein, minerals, and vitamins, but it also inhibits your body's ability to absorb these nutrients

from food: Alcohol depletes your body's zinc resources, which can result in a reduction in endurance.

- **The effects of exercising with a hangover:** Hangovers are actually caused by alcohol toxicity, dehydration, and the toxic effects of congeners (or the byproducts of fermentation) that are present in most alcoholic drinks. If you've ever experienced a hangover, you've probably felt the symptoms of nausea, soreness, depression, and headaches that frequently coincide with a proclamation to never drink alcohol again. The symptoms can lead to decreased athletic performance and have been known to decrease aerobic performance capacity by as much as 11%. So, if you have a lingering hangover, its best not to exercise, as it can increase your risk of injury and further dehydrate you. If you're physically active, consider how drinking will affect your athletic performance. If you choose to drink, avoid alcohol beyond low-amount social drinking for 48 hours before your event, and be sure to rehydrate and eat before consuming alcohol post-exercise.
- **Heavy, chronic alcohol consumption impairs exercise performance by:**
 - impairing the cardiovascular response to exercise
 - causing nutritional deficiencies from alterations in nutrient intake, digestion, absorption, metabolism, physiological effects, turnover, and excretion of nutrients
 - causing *sympathy*, or muscle damage, wasting, and weakness, in various muscles, including the heart
 - changing the body's hormonal environment, making it less conducive to increasing muscle mass and strength
 - compromising cardiovascular and muscular performance in people with alcoholism

Special concerns for women:

- Women's muscular strength is inversely correlated with total life-time doses of alcohol
- Women may be more sensitive than men to the toxic effects of alcohol on the heart
- **Effects of alcohol on sport performance:** Overall, alcohol is detrimental to sports performance because of how it affects the body during exercise. It does this in two main ways. Firstly, because alcohol is a diuretic, which means it makes your kidneys produce urine, drinking too much of it can lead to dehydration. Exercising soon after drinking alcohol can make this dehydration worse because you sweat as your body temperature rises. Combined, sweating and the diuretic effect of exercise make dehydration much more likely. You need to be hydrated when you exercise to maintain the flow of blood through your body, which is essential for circulating oxygen and nutrients to your muscles. "Dehydration leads to reduced performance," says Professor Greg Whyte, an expert in sports performance. "Hydration also helps control your body temperature so you're more likely to overheat if you've been drinking alcohol." Secondly, alcohol interferes with the way your body makes energy. When you're metabolizing or breaking down alcohol the liver can't produce as much glucose, which means you have low levels of blood sugar. Exercise requires high levels of sugar to give you energy. If your liver isn't producing enough glucose, your performance will be adversely affected. "If your body is forced to run from your supplies of fat rather than blood sugar, you will be slower and have less energy and won't be able to exercise as intensely," says Professor Whyte. As a result, your coordination, dexterity, concentration and reactions could be adversely affected too. Both of these effects are immediate which is why it's not advised to exercise or compete in the sport soon after drinking alcohol.
- **Longer-term effects:** Indeed, alcohol is high in sugar which means it contains calories, seven calories a gram in fact, almost as many as pure fat. "If your aim in the gym or through exercise is weight management, then it seems paradoxical to consume 'empty' calories in liquid form," says Professor Whyte. Alcohol can also slow down the amount of calories you're able to burn

through exercise. Because your body isn't designed to store alcohol, it tries to expel it as quickly as possible. This gets in the way of other processes, including absorbing nutrients in food and burning fat. Muscle gain can be affected too. Alcohol can disrupt sleep patterns and growth hormones, vital for muscle growth, are released while you're in deep sleep. It could also reduce the amount of testosterone – a hormone you need to gain muscles – which you have in your blood. "And drinking alcohol to excess can poison muscle fibres which means they don't adapt like they should do for up to three days," says Lovall.

- **Alcohol and your heart rate:** Most worryingly, drinking can increase the potential for unusual heart rhythms. This is a risk which significantly increases during exercise up to two days after heavy alcohol consumption. "How much you need to drink to be at risk depends on the individual, but the risk increases if you are an irregular drinker," says Professor Whyte. It's because the activity itself already increases your heart rate and with a lot of alcohol in your system, you put extra stress on the organ. Other long-term impacts of alcohol such as heart disease, cancer and liver disease .
- **The effects of exercising with a hangover:** Hangovers are actually caused by alcohol toxicity, dehydration, and the toxic effects of congeners (or the byproducts of fermentation) that are present in most alcoholic drinks. If you've ever experienced a hangover, you've probably felt the symptoms of nausea, soreness, depression, and headaches that frequently coincide with a proclamation to never drink alcohol again. The symptoms can lead to decreased athletic performance and have been known to decrease aerobic performance capacity by as much as 11%. So, if you have a lingering hangover, it's best not to exercise, as it can increase your risk of injury and further dehydrate you. If you're physically active, consider how drinking will affect your athletic performance. If you choose to drink, avoid alcohol beyond low-amount social drinking for 48 hours before your event, and be sure to rehydrate and eat before consuming alcohol post-exercise.

3. Alcohol Improves

- **Drinking alcohol while recovering from a sports injury:** Sports performance is also impaired when you drink after you've had an injury. You'll be out of action for longer because the recovery process slows down. "It's difficult to quantify how much you have to drink, but we know that alcohol causes the blood vessels to the skin, arms and legs to open up," explains Griffin. "The increased blood supply makes an injury bleed and swell even more."
- **Cutting back:** If you regularly drink above the government's lower risk guidelines your body starts to build up a tolerance to alcohol. This is one of the main reasons why many medical experts recommend taking regularly to ensure you don't become addicted to alcohol. If you are drinking above the guidelines, see what positive results you notice when you reduce your drinking – better sports performance is likely to be one of them.
- **Alcohol prevents muscle recovery** – Getting enough rest is essential to building bigger and stronger muscles. However, because drinking alcohol negatively affects your sleep, your body is robbed of a chemical called human growth hormone, or HGH, when you drink. HGH plays an integral role in building and repairing muscles, but alcohol can decrease the secretion of HGH by as much as 70 percent. Additionally, when alcohol is consumed in amounts typical with binge drinkers.
- **Alcohol depletes your energy** - After alcohol is absorbed through your stomach and small intestine and moves into your cells, it can disrupt the water balance in your body. An imbalance of water in your muscle cells can hamper their ability to produce adenosine triphosphate (ATP), which provides the fuel that is necessary to help your muscles contract. A reduction in your body's ATP can result in a lack of energy and loss of endurance.

4. Nutritional Aspects of Alcohol and Sports: Alcohol as a Nutrient:

Each gram of alcohol provides seven kilocalories

compared to nine for fat and four each for carbohydrate and protein. Other nutrients may be present, depending on the type of beverage. Beer, for example, has been seen as a good source of many nutrients and has sometimes been used in preparation for endurance events or to replenish nutrients following the competition. Many athletes and sports administrators name beer as their preferred alcoholic beverage, and some athletes may still believe that beer is an effective beverage for replacing fluid and supplying high energy. However, beer will actually worsen dehydration due to the diuretic effect of alcohol on the renal system. Beer is inappropriate as a carbohydrate replacement; the 7g of energy per gram of alcohol (ethanol) provides "empty calories" and does not provide available glucose. *Acute* ingestion of alcohol provides no benefits relative to the energy sources for exercise and in fact may reduce muscle glycogen at rest, impair gluconeogenesis, cause hypoglycemia and decrease leg-muscle glucose uptake. Exercise will not increase alcohol metabolism. In the chronic alcoholic, alcohol replaces the normal macronutrient intake (protein, carbohydrates, and fats) and nutritional deficiency diseases can develop. In fact, alcohol ingestion *lowers* muscle glycogen levels and will decrease the available fuel for normal aerobic energy production.

5. Alcohol and Injury

- Athletes who drink alcohol at least once per week have an elevated risk of injury as compared to athletes who do not drink.
- Consuming alcohol regularly depresses immune functioning and slows the healing process for sports-related injuries.
- Alcohol-related injuries in sports like cycling, boating, ice skating, snow skiing and swimming are likely related to a decrease in psychomotor functioning and impaired judgment.
- Nearly 1/3 of college students consume alcohol during participation in recreational boating or swimming, while greater than 50% of young adult drowning victims have detectable post-mortem blood alcohol levels.

6. Conclusion of the study

Alcohol has acute effects on motor skills, strength and power, and aerobic performance a decrease in overall performance levels slowed running and cycling times, weakening of the pumping force of the heart impaired temperature regulation during exercise decreased grip strength, decreased jump height, and decreased 200- and 400-meter run performance faster fatigue during high-intensity exercise Alcohol has been linked to exercise-induced anaphylaxis and asthma. Acute ingestion may cause myocardial irritability, resulting in arrhythmias. Consumption before water activities increases the risk of injury.

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