

REST HUB

Sleep Ready

Alcohol, Sleep, & Recovery

Alcohol is a psychoactive substance primarily comprised of ethanol.

Consumption may reduce brain activity by increasing neurotransmitters responsible for feeling sleepy or induce feelings of relaxation and euphoria by intensifying the reward-seeking component of dopamine.

With both acute and chronic consumption, feelings of sleepiness may be increased, often accompanied by increased tension, anxiety, or depression.

The frequency and volume of alcohol consumption influence the extent of potential negative outcomes on sleep, recovery, and performance. Drinking patterns are commonly divided into¹:

Light / moderate	Social 'binge'	Extreme 'binge'	Heavy drinking
1-4 standard drinks per day.	4-5 standard drinks over 2 hours.	8-10 standard drinks on the same day.	'Binge' drinking 5 of the last 30 days.

Alcohol & sleep

Even low doses of alcohol may negatively impact sleep, however the volume consumed and proximity to bedtime may exacerbate negative effects². It is a common misconception that alcohol improves sleep. While alcohol has a sedative effect which may reduce sleep onset latency (i.e., falling asleep faster), sleep quality may also be compromised via:

- × Reduced time in bed.
- × Increased wakefulness.
- × Altered timings of restorative sleep stages (i.e., slow wave sleep and rapid eye movement (REM) sleep).
- × Reduced total time spent in REM sleep.

Alcohol & recovery

Alcohol consumption can compromise cognitive and motor skill performance and negatively impact post-exercise recovery and adaptation to training, with the potential for:

Muscle function & adaptation	Refuel & rehydrate	Immune responses & hormone regulation
<p>Increased muscle cramps, perceived soreness, and fatigue.</p> <p>Reduced proprioception, force production, and protein synthesis.</p> <p>As a result, the following may be decreased:</p> <ul style="list-style-type: none"> > Speed. > Reaction time. > Endurance. > Maximal strength, power, and muscle contractile force. > Muscle adaptation and repair. 	<p>Reduced antidiuretic hormone, leading to increased fluid loss, particularly during the night.</p> <p>Inhibition of post-exercise increases in glucose serum, protein synthesis, and the restoration of muscle glycogen levels.</p> <p>As a result, the following may occur:</p> <ul style="list-style-type: none"> > Increased sweat production and risk of dehydration. > Impaired thermoregulation. 	<p>Reduced pro-inflammatory pathways responsible for immune function.</p> <p>Decreased testosterone production.</p> <p>Changes to neuroendocrine responses (e.g., cortisol).</p> <p>As a result, the following may be reduced:</p> <ul style="list-style-type: none"> > Skeletal muscle function. > Bone density. > Red blood cell count. > Hypothalamic-pituitary-adrenal axis function (psychological-physiological stress response system).

Athletes should be encouraged to seek professional help for alcohol dependency.

Recommended Reading

¹Alcohol Research: Current Reviews Editorial Staff [2018]. Drinking patterns and their definitions. *Alcohol research: current reviews*, 39(1), 17–18.

²Gardiner C, et al. The effect of alcohol on subsequent sleep: A systematic review and meta-analysis. *Sleep Med Rev* (Under Review).

Barnes M. Alcohol: Impact on sports performance and recovery in male athletes. *Sports Med*. 2014 Jul;44(7):909–19. doi: 10.1007/s40279-014-0192-8.

Barnes M, Mundel T, Stannard S. The effects of acute alcohol consumption on recovery from a simulated rugby match. *J Sports Sci*. 2012;30(3):295–304. doi: 10.1080/02640414.2011.637949.

Rodrigues R, et al. Can the combination of acute alcohol intake and one night of sleep deprivation affect neuromuscular performance in healthy male adults? A cross-over randomized controlled trial. *J Strength Cond Res*. 2019 May;33(5):1244–1251. doi: 10.1519/JSC.0000000000003124.

