



**B L A C K F O X**

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**C O A C H I N G & N U T R I T I O N**

**B O R N F O R P R O G R E S S**

**ALCOHOL**

 **blackfox\_nutrition**

### ALCOHOL

**Alcohol** is both a drink and a drug at the same time. For thousands of years, alcohol has been consumed for medical, holiday and ritual purposes. It is drunk in almost every country and often in excessive quantities.

Alcohol can be made from a variety of starchy foods through a process called fermentation. Fermentation (fermentation), for example, of barley or wheat, can produce ethanol and CO<sub>2</sub>, thus making beer.

In the 50s of the XX century, Soviet citizens began to be told about the pseudo-scientific theory of "cultural drinking", where it was argued that it would teach the population to drink and not drink too much, and it was also told about the benefits of alcohol in small quantities. After the introduction of this theory into the mass consciousness, the number of alcoholics in 20 years has increased 11 times. Well, it's not about that!

Alcohol is a psychoactive drug. A psychoactive substance is any substance that crosses the blood-brain barrier, primarily affecting the functioning of the brain, be it changes in mood, thinking, memory, motor control or behaviour. In chemistry, alcohols belong to a group of similar organic compounds; in alcoholic beverages, we find only ethanol.



### ALCOHOL

More than 75% of alcohol consumed is metabolized in the liver. The remaining amount remains in the blood and is eventually excreted through respiration (this is how breathalyzers work), urine, saliva and sweat. Taking into account the rate at which the liver metabolizes alcohol after stopping use and the rate at which alcohol is eliminated, it takes a person under the influence of alcohol at least five hours to achieve sobriety.

The blood alcohol concentration (BAC) is measured in milligrams percent, comparing units of alcohol to units of blood. BAC is a measurement used to assess drunkenness as well as impairment and the ability to perform certain actions, such as driving a car.

Typically, the liver can digest / process one standard drink (350 ml of beer, 150 ml of wine or 30 ml of strong liquor) per hour. Giving your liver enough time to fully absorb the alcohol you drink is the only effective way to avoid alcohol intoxication. Drinking more alcohol will raise your BAC levels to potentially unsafe levels.

The following factors affect the rate at which a person's BAC level rises:

- gender (women's BAC rises faster than men's)
- weight (BAC will grow more slowly in obese people)
- genetics
- length of stay as an avid drunkard
- type of alcohol consumed
- amount of alcohol consumed
- consumption before or after meals (food in the stomach slows down absorption)
- mix (carbonated drinks change the suction rate)
- medications can increase the bioavailability of alcohol

## BLOOD ALCOHOL CONCENTRATION AND ITS EFFECT

0,02 %

Some loss of judgment, mood swings, relaxation, increased body heat transfer

0,05 %

Behavior change, impaired judgment, may show some loss of muscle control (eye focus), usually well-being, decreased alertness, excessive relaxedness

0,08 %

Poor muscle coordination (balance, speech, vision, reaction time), difficulty detecting danger, and impaired judgment, self-control, thinking and memory

0,10 %

Obvious deterioration in muscle control and reaction time, slurred speech, poor coordination, slow thinking

0,15 %

Much less muscle control than normal, greater loss of balance, vomiting



### SOME CONSEQUENCES OF ALCOHOL CONSUMPTION

#### ALCOHOL AND MUSCLES

Alcohol can reduce muscle synthesis (up to 25% reduction), which has been shown in a number of studies. Through a variety of pathways, some of which involve estrogen and testosterone production (testosterone levels and recovery ability drop significantly), therefore, the more you drink, the less muscle you are likely to build.

Also, under the influence of alcohol, the structure of protein, the main building block of muscles, irreversibly changes, its denaturation occurs (alcohol takes away water from it, precipitates it), which leads to a longer retention of it in the stomach. As a result of a chain of processes, the biosynthesis of proteins changes and the export of proteins and VLDL from the liver is further slowed down!

You are unlikely to lose muscle mass on maintenance or muscle-building diet - a hypercaloric diet when you drink in moderation. However, with an excess of alcohol, the percentage of weight gain will shift towards fat and significantly!

Alcohol increases the chances of losing muscle mass when you are on a low-calorie diet (calorie deficit). Even if you fit your beer calories into your norms, they can have a more negative effect on body composition than others.

Alcohol consumption can cause sleep disorders by disrupting the sequence of fast and slow sleep phases, reducing the restorative effect of sleep on muscles.

In general, if you want to work on the quality of your body, it is better to minimize your alcohol intake and limit yourself to 500 ml of beer for men and 330 ml for women (20-30 g / 10-20 g of ethanol per week, respectively). That being said, don't miss out on your daily activities and workouts!

### SOME CONSEQUENCES OF ALCOHOL CONSUMPTION

#### ALCOHOL AND HYDRATION

Alcohol is a diuretic that leads to dehydration, which can interfere with recovery and performance. It inhibits the release of antidiuretic hormone and less water is reabsorbed and more excreted.

Excessive alcohol consumption can lead to a "hangover", most of the symptoms of which are a direct result of dehydration.

You can avoid this process by drinking extra fluids during and after drinking alcohol, but since alcohol is a diuretic, you will make frequent trips to the bathroom.



### SOME CONSEQUENCES OF ALCOHOL CONSUMPTION

#### DRINKING AND SLIMMING

Alcohol is an energetically valuable product, 1 g - 7 calories (energy density is relative), which is more than protein and carbohydrates. Moreover, it disrupts the function of the Krebs cycle, which plays an important role in the processes of energy supply, since the first step is not the process of the so-called cellular respiration, but the prompt disposal of the toxic product of alcohol oxidation - acetate. Also, instead of burning your body fat (in a calorie deficit), cells will preferentially use alcoholic calories, halting your fat loss progress.

In a study by the American Journal of Clinical Research, it was determined that 24 grams of alcohol can reduce fat oxidation by 73%. Thus, most of the energy in alcohol will be converted to fats (accelerating lipogenesis).

In addition, under the influence of alcohol, appetite increases and, as a result, excess calories. Theoretically, you can count calories and still drink several drinks, even if you are in a calorie deficit, however, you must understand that alcohol is "empty" calories and you are taking away from the body macro and micronutrients that it could receive within these calories if you filled them with a normal meal.

### SOME CONSEQUENCES OF ALCOHOL CONSUMPTION

#### ALCOHOL AND ORGANS

Alcohol can negatively affect almost every area of the brain. When the BAC rises, the central nervous system is suppressed. Alcohol disrupts the communication of nerve cells with each other, acting on the receptors of certain cells. The direct effects of alcohol on the brain can be seen in awkward symptoms such as confusion, blurred vision, slurred speech, and other signs of intoxication. These symptoms will go away as soon as you stop drinking, but alcohol abuse can lead to long-term damage to the brain and nervous system over time. This is because alcohol and its metabolic byproducts kill brain cells.

Alcohol affects the cardiovascular system, the digestive system, and, consequently, metabolic processes! In particular, everyone knows about the colossal influence on the main "plant" of metabolic processes - the liver! And if one of the systems was initially affected in a person, alcohol will have a greater negative effect on it.



### MODERATE ALCOHOL CONSUMPTION

Unlike heavy drinking, moderate alcohol consumption has been shown by some studies to provide health benefits. These data are the most convincing for the prevention of cardiovascular diseases in middle-aged and older people.

A review of twenty-nine studies found that moderate alcohol consumption reduced the risk of coronary heart disease by about 30 percent compared to those who do not drink \*.

Other studies show that moderate alcohol consumption reduces the incidence of stroke and heart attack, as well as death from cardiovascular disease.

In addition, there is some scientific evidence that moderate alcohol consumption reduces the risk of metabolic syndrome, type 2 diabetes, and gallstones.

It has not been clearly demonstrated that moderate alcohol consumption benefits the younger generation and pregnant women, those who take medications and interact with alcohol, and those who cannot drink in moderation.

\*Ronksley PE, et al. Association of Alcohol Consumption with Selected Cardiovascular Disease Outcomes: A Systematic Review and Meta-Analysis. BMJ. 2011; 342, d671. <http://www.bmj.com/content/342/bmj.d671>. Accessed October 5, 2017.

### ALCOHOL AND TRAINING

There are often two extreme opinions about alcohol use in sports: the first is that it should be avoided by everyone at all times, especially those who are serious about their fitness or athletic goals, and the second is that alcohol does not affect the training process (if you not a professional) when consumed in moderation (which we talked about earlier) and within the calorie restriction. As with so many things, reality lies somewhere between these extremes.

It is important to remember that alcohol exposure occurs on a spectrum related to consumption. For most people who are not professional athletes, light drinking (1-3 drinks once a week) will not have a significant effect on health, body composition, or performance.

When we move to above-average doses (3-10 drinks per week), even in small amounts (1-3 drinks per day), there can already be slight differences in body composition, performance and adaptation to exercise. At this level of alcohol consumption, health is unlikely to suffer, so people here often find a compromise between being satisfied with their body composition and having a drink on the weekend or at dinner.

With an average of 4 drinks or more per day, the effects begin to threaten health more seriously, not to mention exercise.



### BRIEF SUMMARY AND RECOMMENDATIONS

- The negative effects of alcohol appear in a dose-dependent manner, the more you drink, the worse the effects. We discussed the optimal doses and consequences, the choice is yours.
- Alcohol consumption can directly reduce protein synthesis and muscle growth, suppress fat loss, the ability to recover from hard workouts, the ability to achieve high quality sleep, and can lead to dehydration. However, with moderate alcohol consumption, these facts are unlikely to affect you.
- If you choose to keep moderate doses of alcohol in your life, find balance and are content with your body composition, you can reduce some of the negative effects of alcohol by following some principles:
  1. Do not consume more than 2-4 drinks at a time, more than several times a week.
  2. Stick to drinks with fewer calories, sugar and fat
  3. Keep tempting and high-calorie foods out of reach while drinking
  4. Drink less when you are at high volumes
  5. Drink less when you are in the low-calorie diet phases
  6. Drink enough water between drinks and after to maintain fluid balance
  7. Stop drinking a couple of hours before bed.
- These strategies can be used to minimize the negative effects of alcohol, but there are times when abstinence or as little as possible is the best choice. For example, on the #BlackFoxNutrition stream, we try to completely eliminate alcohol!



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