Effects of Alcovit on blood alcohol level – open-label study, Berlin 2009

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Alcohol effects on human body Effects of Alcovit

The alcohol consumption results in the increase in its content in the human body; this is connected with the individual effects of alcohol and their results.

For the proper estimation of the blood alcohol concentration, many individual factors that affect its absorption have to be considered: body mass, body composition, sex, blood volume, types of consumed food, amount of consumed alcohol. The average speed of alcohol elimination from the body of a man in one hour amounts to 0.1–0.2‰, in women it is by 15% less. Alcohol is absorbed completely within 1-2 hours. Only 3% of alcohol is excreted through the lungs,, 1-2% of alcohol is excreted through urinary tract.

The clinical manifestation of the effects of blood alcohol concentration amounting to 1,2‰ is much differentiated. Very often no symptoms are identified in alcohol addicts while in teenage girls such concentration may cause intoxication. The individual body tolerance for different alcohol concentrations varies significantly. For some individuals the blood alcohol concentration of 3‰ may be really life-threatening, while there are persons who survive the poisoning with alcohol in concentration of 8‰ (in such cases the intensive hospital care is necessary which includes hemodialysis, administration of fluids which "dilute" alcohol).

Alcohol poisoning - grading and symptoms dependent on the blood alcohol content:

I grade: agitation (1-2‰), unrest, speech problems, excessive self-confidence

II grade: daze (2-2.5‰), aggression, muscle weakness, miosis, memory loss

III grade: loss of consciousness (2.5-4‰), stupor, loss of awareness, shock, mydriasis

IV grade: Loss of ability to breath (4‰ and more), coma, shock, absence of pupil reaction, impairment of natural breathing , hypothermia, death.

The increased blood alcohol concentration causes the "narcotic" effect, i.e. gradual loss of awareness leading to complete loss of awareness although the spontaneous breathing and functioning of blood circulation is maintained.

The progressing narcotic effect of the alcohol poisoning depends on individual characteristics of the organism and cannot be precisely predicted in unknown persons.

ALCOVIT contains the mineral silicate of natural origin capable of very efficient binding of alcohol particles. The silicate structure is characterised by strong selective affinity for alcohol molecules which are bound and incorporated into its molecular structure allowing for their elimination.

After taking ALCOVIT, the silicate binds to the alcohol particles in gastrointestinal tract. From the chemical point of view alcohol is the so called amphiphile particle which is water- and fat soluble. The fat solubility is the reason for the narcotic effects of alcohol which binds to the fat of the brain neural tissues . The amphiphylic structure of alcohol particles results in quick permeation across biological membranes in order to achieve the balance of concentrations in various body parts. The alcohol present in the organism may thus be reabsorbed to the intestinal lumen in line with the concentration gradient "osmosis". As a result it may be bound by ALCOVIT and eliminated from the body without causing any adverse effects.

ALCOVIT is excreted together with alcohol through gastrointestinal tract.

The effects of ALCOVIT may be evidenced and demonstrated with the measurement of the decrease in blood alcohol concentration – always in connection with the time of its consumption. It is of no significance whether the blood alcohol content is measured in blood or in the exhaled air. It may be actually expected that one dose of ALCOVIT will reduce the blood alcohol content by ca 0.5‰.

Alcovit reduces ethyl alcohol concentration in blood

The alcohol consumption is a common phenomenon almost all around the world. The alcohol consumption on a mass scale has numerous negative health, social and economic consequences. The economical consequences are related, among others, to the increase absence form work or reduced efficiency of employees resulting most often from the so called "symptoms of the next day". As the Alcovit preparation has the ability of selective binding of ethyl alcohol in vitro, the aim of the study was to check whether the consumption the Alcovit preparation (15 g) affects the blood alcohol concentration in humans.

Methods: Probands' parameters. The study population included 19 probands (10 men and 9 women) aged 20-39 years (mean age of the entire group– 28.2 years) and mean BMI – 22,2. The body mass of the majority of probands – 16 subjects was proper, the overweight was confirmed only in, 2 patients.

Study design: Each proband consumed alcoholic beverages in the time of 120 - 173 minutes. The type and amount of alcoholic beverages (beer, wine, and vodka) were selected individually. Prior to the commencement of the study the zero blood alcohol content was confirmed in all probands.

The test commencement was preceded by a meal and during the test the probands consumed small amounts of sweets, spicy snacks, water and (alcohol-free) beverages. Each proband ended the alcohol consumption individually. Since that moment the probands did not consume additional portions of alcohol or other food products. After 30 minutes (the first test) following the end of the alcohol consumption the blood alcohol content was determined in each proband. The mean blood alcohol content after 30 minute amounted to 1.04‰. Further on the study participants drank 15 g of Alcovit dissolved in 200 mL of water. The blood alcohol content was measured in each proband in there time points: after 30, 60 and 90 minutes.

Adverse reactions: None of probands showed intolerance to Alcovit preparation or other symptoms of adverse reactions.

Measurement of blood alcohol concentration: The blood alcohol content was measured with the certified breathalyser (Dragger Alco tester), based on the assessment of blood alcohol content in the exhaled air.

Figure 1. Comparison of blood alcohol concentration in the test population following alcohol consumption and 30 minutes after taking ALCOVIT

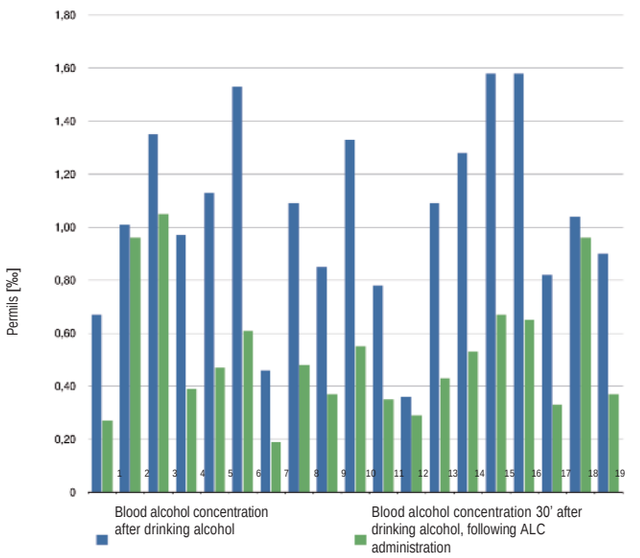


Figure 2. Comparison of blood alcohol concentration in the test population in 30, 60, 90 minutes after taking ALCOVIT

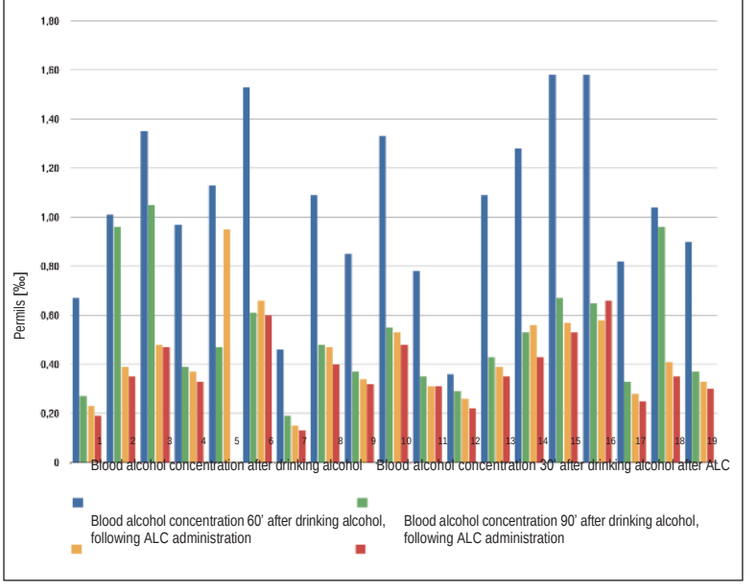


Figure 3. Decrease in blood alcohol concentration in % in all subjects

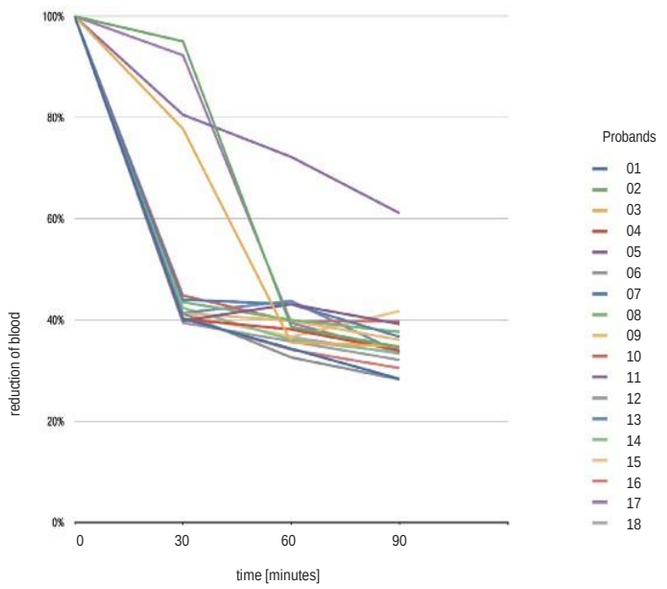
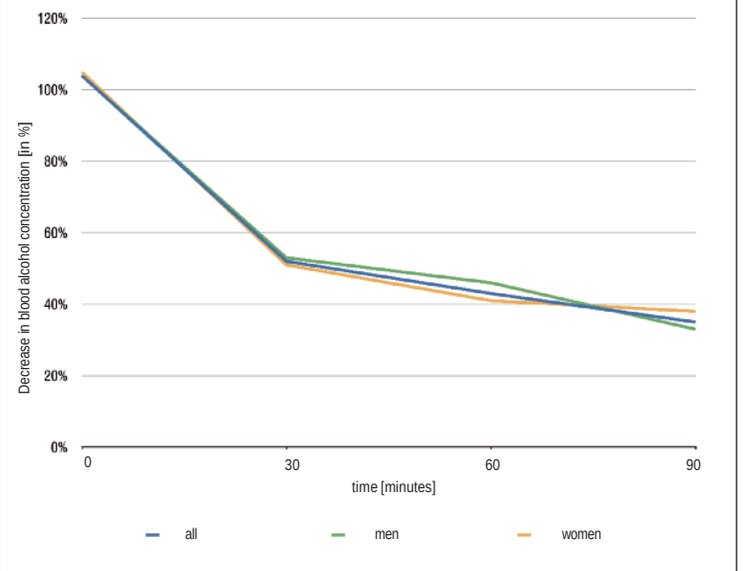


Figure 4. Comparison of mean decrease in blood alcohol concentration in % after taking ALCOVIT in the group of female and male subjects



RESULTS

The mean blood alcohol concentration measured after 30, 60 and 90 following the consumption of Alcovit preparation was 0.52, 0.43 and 0.37‰ respectively, responding to 51.0%, 42.3% and 34.2% of the mean baseline value, respectively.

CONCLUSIONS

- The consumption of Alcovit preparation effectively reduces the blood alcohol concentration.
- After 30 minutes from taking Alcovit the mean decrease in blood alcohol concentration amounted to 51.0%.
- After 90 minutes the mean decrease in blood alcohol concentration amounted only to 34.2% of the mean baseline value (1.04‰). The rate of reduction of the blood alcohol concentration following Alcovit was higher than resulting from the natural processes of alcohol elimination (mean value: 0.15‰ of ethanol per hour).
- It may be actually expected that one dose of Alcovit will reduce the blood alcohol concentration by ca 0.5‰.
- The obtained results suggest that the Alcovit preparation may effectively reduce the blood alcohol concentration, thus minimising the unpleasant symptoms of hangover.