

# Sensorimotor reactions of adolescents, influenced by tobacco and low-alcohol beverages use

## Abstract

The aim of this study was to evaluate the health of adolescents, regularly drinking LAB, as well as the combined effect of LAB drinking and tobacco smoking on the of their central nervous system state.

**Keywords:** adolescents, tobacco smoking, low-alcohol beverages, sensorimotor reactions

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## Introduction

It is a well-known fact, that drug use by adolescents in 100% of cases is preceded by smoking and alcohol consumption for 2-3years.<sup>1-3</sup> Nicotine and alcohol are legal substances available to adolescents that contribute to the decline in age of using them. In recent years, LAB consumption is widely spread among young people, it is often considered not only harmless, but even a useful drink. However, if the evaluation of smoking impact is limited mainly to the description of the effect on respiratory system the problem of LAB consumption impact on adolescents' health, is not indicated in the scientific literature, despite its apparent triviality.

## Research methods and organisation

College students took part in the study. The experimental group (56 adolescents), during the last two years systematically consumed LAB (3 and more times in week). Control group- (54 adolescents) did not consume or consumed LAB occasionally (not more than 1 time per month). The information concerning diseases of the last 2 years, and the body mass index characteristics were collected from the medical records.

From those adolescents two groups of «habitual smokers» were organized to study the combined effects of tobacco smoking and LAB consumption on central nervous system status. The experimental group of 32 adolescents during the experiment smoked and drank 0.5liters of LAB; the control group 32 of such adolescents only smoked during the experiment. These groups were similar in the number and type of cigarettes consumed and their smoking experience: 50% of adolescents started smoking before the age of 14 (the average smoking history - 3.1 years), the rest started smoking after 14 years (the average smoking history -2.4 years). In an anonymous survey of 56 systematically consuming LAB adolescents 16 (29.8%) admitted that, they used strong alcoholic beverages at least once a week, and, 7 of them tried drugs at least once. Among Adolescents in the control group did not do that (the difference being statistically significant).

Combined effect of smoking and LAB drinking impact on central nervous system state was studied by the mean time of a simple sensorimotor reaction to light and sound (in ms) and by the subjects'

percentage distribution (according to the functional state values) in dynamics: before the impact of «LAB+smoking», immediately after such impact, and after 15 and 30 minutes.<sup>4</sup> The distribution by the functional state values at different moments of the study was calculated as a percentage. The differences significance was determined by Student's criterion (quantitative values) and Fisher's criterion (qualitative values). 95% significance level was accepted.<sup>5</sup> The differences were considered to be significant at  $t > 2.14$  and at  $F > 3.92$ .

## Results

The study revealed significant differences between adolescents, systematically drinking LAB and those from the control group by a number of values.

In the experimental group statistically significant differences in the number of adolescents with gastrointestinal diseases and increased BMI were noted. This fact may be due to the systematic use of alcohol, which is a high-calorie product.

In the group of students who smoked and drank alcohol sensorimotor reactions slowed down immediately after consumption (sound response - from 165.5ms to 195.6ms; light response - from 165, 5ms to 215, 6ms). After 30 minutes, the differences increased. In the group of students who smoked only, changes in sensorimotor reactions after 30minutes leveled.

## Conclusion

Active smoking has a short-term stimulating effect on central nervous system it disappears completely after 30minutes. The established fact of LAB consumption negative impact on adolescents' physical development and chronic morbidity allows referring such adolescents to the risk group of increased morbidity. The obtained facts confirm the negative impact of the combined action (LAB+smoking) on central nervous system. Among adolescents, systematically drinking LAB, 16people who, at least once a week drank strong alcoholic beverages, and, 7-tried drugs at least once were identified. Probably, for such adolescents the risk of introduction to drugs is higher than for those, who do not have bad habits. The results obtained allow to form

groups for the organization and implementation of activities aimed at preventing bad habits the formation in adolescents, and accordingly, to preserve their health and reduce the risk of drug addiction.<sup>6,7</sup>

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### Conflicts of interest

Author declares that there are no conflicts of interest.

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