The influence of nutrition, smoking and alcohol intake on head blood perfusions in the medical students

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Health state in the young people is a serious problem in Ukraine. Many of them have abundant weight, use fats and take alcohol as well as they have got low physical activities. We have assessed interconnections between nutrition, smoking and alcohol intake on head blood perfusion in the medical students to gain such a goal as feeding and life style correcting. Using rheoencephalography (REG), anthropometric data has been gathered on 97 medical university students with regard to nutrition, smoking and alcohol intake. Average student age was 19,1, ±0,2 years, body mass was 65,8, ±1,4 kg, height was 173,4, ±1,0 cm, Body Mass Index (BMI) was 24,9 ±1,4 kg/m.

REG data showed that blood perfusion in the front part of the head is reduced in 29,9 % of subjects surveyed, is normal in 37,7 %, and is increased in 32,5 % of cases. Rear head blood perfusions are reduced in 45,5%, are normal in 24,7%, and are increased in 29,9 % of those surveyed. The blood perfusion in the front part of the head was correlated inversely with body mass (τ =-0,39, $p < 0,001$), height (τ =-0,42, $p < 0,001$), body surface area (τ =-0,45, $p < 0,001$), BMI (τ =-0,30, $p < 0,001$), and coefficient of hand force (τ =-0,29, $p < 0,001$). Also a negative relationship was observed with the use of lard (τ =-0,21, $p < 0,05$), intensity of smoking (τ =-0,30, $p < 0,005$ and τ =-0,27, $p < 0,02$ accordingly), incidence of alcohol intake (τ =-0,25, $p < 0,02$ and τ =-0,21, $p < 0,05$ accordingly). The blood perfusion level of the back part of the head had a negative correlation with body mass (τ =-0,30, $p < 0,001$), body surface area (τ =-0,27, $p < 0,001$), BMI (τ =-0,31, $p < 0,001$), coefficient of hand force (τ =-0,21, $p < 0,02$) and level of emotional stress during the previous year (τ =-0,23, $p < 0,05$).

A positive correlation of blood perfusion of the front part was observed with the level of consumption of fresh fruit (τ =0,33, $p < 0,02$), vegetables (τ = 0,34, $p < 0,001$), and fish (τ = 0,24, $p < 0,001$). Similarly, the blood perfusion of the back part of the head also had a positive correlation with the level of consumption of fresh fruit (τ = 0,26, $p < 0,001$), vegetables (τ = 0,23, $p < 0,001$), and quantity of fish (τ = 0,37, $p < 0,001$).

The blood perfusion level of the back part of the head had a positive correlation with the training success of the students (τ = 0,27, $p < 0,005$). Thus, the use of fresh fruit, vegetables and fish may increase the level of blood perfusion of the head. Smoking and the frequent use of alcohol may decrease the level of blood perfusion of the head.

Where applicable, the authors confirm that the experiments described here conform with The Physiological Society ethical requirements.