

Optimization of the reactions of the cardiovascular system of a healthy person to submaximal physical activity under the influence of a single electropuncture effects

B.Sh. Usupbekova

(Center for Contemporary Medicine and Cosmetology "Architecture of Health", Moscow)

SUMMARY

We investigated the effectiveness of using three variants of single procedures of electropuncture (EP) for PWC170 indices and the recovery time of the heart rate (HR) and the efficiency of blood circulation. The most pronounced positive effect for all the studied indicators was recorded when using EP, the points for which were selected based on the results of electropunctural diagnostics. In a less pronounced degree, but also a significant increase in the PWC170 index and a reduction in the recovery period of hemodynamic parameters, the procedure of paravertebral electropuncture massage also had a significant effect. EP by ST36 points allowed to shorten the heart rate recovery time, but did not affect other investigated parameters.

Key words: physical performance, electropuncture, healthy people.

There is a lot of unofficial evidence that stimulation of acupuncture points can increase physical performance, accelerate the body's recovery after exhausting stress. For example, among the comments on the successes of the PRC national team at the 2008 Summer Olympic Games, it was suggested that they were achieved through the use of acupuncture. Scientific publications of this reason are few in number. In the 1980s, A.V. Gritsak and V.V. Strusova (1985) A.I. Nechushkin (1981), P. Ya. Gaponyuk et al. (1981) and F.G. Portnov (1982), laser puncture - A.M. Karpukhin (1985). Data on the increase in physical performance at a heart rate (HR) equal to 170 min – 1 (PWC170) in healthy people under the influence of laser puncture were confirmed in recent studies by T.I. Dolmatovoysoavt. [http://student.bestfinds.ru/physculture/physculture-referat_1041.php]. Treatment of children suffering from bronchial asthma using bioresonance therapy led to a significant increase in their PWC170 index [1]. All the data mentioned refer to the systematic (course) application of the listed technologies.

The purpose of this work was to study the effectiveness of a one-time procedure EP with the choice of points of influence based on the results of electropunctural diagnostics (EPD).

Materials and methods

The study involved 18 healthy volunteers - men aged 23–25 years, not involved in sports. All subjects performed two standard tests PWC170 on a bicycle ergometer according to the generally accepted method with an interval of 40–45 minutes between them. During the first test PWC170, the power (W) of the first stage of the cycling exercise N1 was set equal to the body weight (kg). The power of the second load stage N2 was calculated by the formula:

$$N2 = N1 [1 + (\text{heart rate}_{50\% \text{ max}} - \text{HR}) / (\text{HR1} - \text{HR})],$$

where $\text{heart rate}_{50\% \text{ max}}$ - HR, which is 50% of its maximum age value, is determined by the formula: $(220 - \text{the number of years old}) / 2$; HR - resting heart rate (initial); HR1 - HR recorded at the end of the first stage of the load [http://cardiodoctor.narod.ru/control_toleran.htm]. When carrying out a repeated sample, the same individual values of the power N1 and N2 were used as in the first sample of PWC170.

At the end of the recovery period (\approx -10 min.) After the first PWC170 test, EPD was performed using the Prognoz hardware-software complex, based on the results of which the maximally abnormal acupuncture canal was identified [2]. In accordance with the type of impact, the subjects were randomly divided into 3 groups of 6 people each.

In the 1st group, during the break, the subjects underwent bilateral EP at the ST36 points (tszu san li) for 15 minutes. The subjects of the 2nd group during the same time received the procedure of paravertebral electropuncture massage - PEM [3]. In group 3, bilateral EP was performed at the sedative points of the maximally abnormal canal in case of its hyperfunction, or at the tonic points in the case of revealed canal hypofunction. 2 people from each group, 3 days after the main test, took part in control studies (control group), where they were given a passive rest for 40 minutes between PWC170 samples.

All EP procedures were performed with DiaDENS devices [4]. In the 1st and 3rd groups, portable point electrodes were used. TEM was performed with a built-in massager electrode along the 1st and 2nd lines of the bladder canal. The PWC170 index was determined graphically [http://cardiodoctor.narod.ru/control_toleran.htm]. At the end of each PWC170 test, the recovery time of the heart rate (HR) and blood pressure (BP) was determined. Based on these indicators, the blood circulation efficiency coefficient (CEC) was calculated by the formula:

$$\text{KEK} = \text{ABP} - \text{ADd HR HR}.$$

For statistical processing of the results, the applied statistical software package from SPSS Inc. was used. (Statistical Products and Service Solution) Version 13.0. Student's t-test was used for normally distributed random variables. When processing the data obtained from the same subjects (the results of the control group), the calculation of the t-criterion was carried out in a modification for paired cases.

Results and discussion

The results of EPD carried out at the end of the period of recovery of heart rate and blood pressure after the first test PWC170 showed that in 6 of 18 subjects the maximum overstepping the boundaries of the conditional age-sex norm - the maximum abnormality was found in the pair of channels "heart (HT) - small intestine (SI) ", And in 5 - in the pair" lungs (LU) - large intestine (LI) ". These pairs of channels, according to the concepts of traditional oriental medicine (TBM), are related to the regulation of the circulatory system and respiration. In 3 subjects, the pericardium (PC) was found as the maximum abnormal pair. - triple heater (TE) ", 2 have a pair" spleen (SP) - stomach (ST) ". According to TBM, the RS – TE pair is related to the regulation of blood circulation and metabolic activity, while the SP-ST pair is related to the regulation of muscle work, immunity, and water-salt metabolism. The 2 remaining subjects recorded indicators indicating the maximum abnormality of the pairs "kidney (KI) - bladder (BL)" and "liver (LR) - gallbladder (GB)". These pairs, according to TVM, "control" the state of bones and tendons, metabolic and enzymatic processes.

Thus, in 78% of the subjects, the most pronounced changes in the EPD indices were noted in the channels corresponding to TVM with the regulation of the cardiorespiratory system, which carries the greatest load when performing submaximal physical loads, which are used in the PWC170 test.

The results of evaluating the effectiveness of the compared EP methods are presented in table. 1. From presented in table. 1 of the data shows that in all four groups the PWC170 indicator increased during the repeated test, and the recovery time for heart rate and CEC decreased. A significant positive effect of EP ST36 was found only in the reduction of the heart rate recovery period. The TEM procedure had practically no effect on the heart rate values at the 1st stage of the repeated sample, but reduced the heart rate at its 2nd stage by an average of 30% ($p \leq 0.05$). At the same time, the oxygen debt of the body not only did not increase, but also significantly decreased, as evidenced by the dynamics of the ΔtHR and $\Delta tKEC$ indicators. The PWC170 index under the influence of the TEM procedure increased unevenly. With the initial values corresponding to the age norm, the increase in the indicator was less pronounced than in those cases when he was below that. The most pronounced positive effect on all the studied indicators was exerted by EP, the points for which were selected on the basis of EPD results. As a result of this procedure, the resting heart rate and heart rate decreased at the 1st and 2nd stages of the repeated test. Thus, the implementation of this variant of EP had the most pronounced optimizing effect on the physiological reactions of a person during physical activity.

Table 1

Changes in the studied parameters during a repeated sample of PWC170 in
depending on the type of exposure
carried out between samples

Вид воздействия	Изменение показателей (%)		
	PWC170	$\Delta t_{\text{ЧСС}}$	$\Delta t_{\text{КЭК}}$
ЭП ST36	+9,3	-15,2*	-8,0
ПЭМ	+14,2**	-42,8**	-34,5**
ЭП/ЭПД	+19,3**	-50,9***	-42,7***
Контроль	+7,5	-9,2	-5,0

Δt_{HR} - change in HR recovery time;

$\Delta t_{\text{КЭК}}$ - change in the coefficient of blood circulation efficiency; EP

ST36 - electropuncture at points ST36;

EP / EPD - electropuncture at points selected on the basis of the results of electropuncture diagnostics;

* - significant ($p \leq 0.05$) differences compared to control

** - significant ($p \leq 0.05$) differences in comparison with the control and the ST36 EP technique;

*** - significant ($p \leq 0.05$) differences in comparison with the control, EP ST36 and TEM.

Despite the good general tolerance of the test loads, some subjects showed a dystonic type of reaction during the first test of PWC170 - a moderate increase in blood pressure in combination with a pronounced decrease in blood pressure. In the 1st and 4th groups, this type of adverse reaction persisted during the repeated test. In the 2nd and 4th groups, it was no longer determined during the repeated test. These observations suggest that TEM and EP / EPD procedures are capable of preventing adverse cardiovascular responses to exercise. However, since they were of a single nature, it is not possible to prove this conclusively without additional research.

In general, the results of the studies carried out confirm and supplement the previously published data on the possibility of obtaining distinct effects of optimizing the reactions of the cardiovascular system to physical activity under the influence of a single EP procedure [3]. The results of the PWC170 sample, like other similar tests, reflect the general state of the reserve and adaptive capabilities of the body. Therefore, EP and other methods of reflexology should be used more widely for preventive purposes, in particular, to prevent potential health threats associated with intense physical activity.

Conclusion

The TVM methodology in its classical version provides for an assessment of the state of the acupuncture canal system before each treatment session. As follows from the data obtained in this work, in order to achieve the maximum optimizing effect of EP on the reactions of the cardiovascular system of healthy people during physical exertion, it is also advisable

assessment of the functional state of the acupuncture canal system. Taking into account the additional difficulties associated with the need for EPD, it is possible to recommend TEM. Providing a moderate sympathomimetic effect, PEM accelerates the body's achievement of the proper level of mobilization of the reserves of the cardiovascular and respiratory systems, and can prevent the development of unfavorable types of reactions to physical activity.

Literature

1. Balabolkin I.I., Gotovsky Yu.V., Savelyev B.P. etc. Bioresonance therapy in the complex treatment of severe bronchial asthma in children // Abstracts and reports. IX International Conference on BRT. Part 1. - M.: IMEDIS, 2003. - S. 246–250.
2. Rozanov A.L. Method of electropunctural diagnostics "Forecast" // Reflexology. - 2003. - No. 1 (4). - S. 26–36.
3. Vasilenko A.M., Doronina Yu.V., Kasyanov T.R., Radzievsky S.A. and etc. Adaptogenic effect of paravertebral electropunctural massage at submaximal and maximum physical loads // Theory and practice of physical culture. - 1988. - No. 1. - S. 17-19.
4. Razumov A.N., Vasilenko A.M., Bobrovnikskiy I.P. etc. Dynamic electroneurostimulation: textbook. - Ekaterinburg. Publishing house "Tokmas-Press", 2008. - 138 p.

Author's address

Usupbekova B.Sh.

Center for Contemporary Medicine and Cosmetology "Architecture of Health"

usupbekova@mail.ru

Usupbekova, B.Sh. Optimization of the reactions of the cardiovascular system of a healthy person to submaximal physical activity under the influence of a single electropuncture exposure / B.Sh. Usupbekova // Traditional medicine. - 2009. - No. 2 (17). - S.36-38.

[To favorites](#)