Materials of Conferences

PHYSIOLOGICAL PARAMETERS OF EXTERNAL RESPIRATION IN SPORTSMEN WITH DISEASES OF MUSCULOSKELETAL SYSTEM

Chizhik L.Y., Aleksanyants G.D.
The Kuban State University of Physical Education, Sport and Tourism, Krasnodar
e-mail: c_l_y@list.ru

Nowadays, much importance is being attached to the functional condition of the ventilation system of sportsmen, which is a factor reflecting body's physical characteristics and its ability for prolonged intensive muscle activity. The interest is determined by the fact that high training loads can cause additional pathologic changes in the organisms of unprepared disabled sportsmen.

The aim of the research was to study how powerlifting influences some of the characteristics of the respiratory system in disabled sportsmen with diseases of musculoskeletal system (DMS).

To analyze the external respiration parameters, we used diagnostic spiroanalyzer Spirolab MIR III with the SpO_2 function (Italy). The breathing capacity (BC), inspiratory and expiratory reserve volumes (IRV, ERV) have been measured.

21 disabled sportsmen, aged between 17 and 25, took part in the observation. The research participants had the following sport rankings: I sport category (5), sub-master sportsmen /SMS/ (6), master sportsmen /MS/ (9), master of sport of international level /MSIL/ (1).

Our control group included 27 apparently healthy people of the same age, who did not do sports.

The comparing parameters of the static lung volumes in both groups has revealed that the BC of the disabled sportsmen was 18% higher than in the control group (reliability $p < 0,05$).

Inspiratory and expiratory reserve volumes of sportsmen with DMS, who did powerlifitng workouts, differed from those of the control group. For instance, ETV of non-sportsmen was several times higher than that of the disabled sportsmen: 1315 ± 3,8 ml and 1190 ± 6,3 ml correspondingly (though these figures did not exceed the average statistic physiologic values). As for the IRV, the disabled sportsmen proved to have higher values than the apparently healthy persons (1867 ± 5,3; 1613 ± 8,2; $p < 0,05$).

Upon the obtained data, we came to a conclusion that there is a certain trend in characteristics of the ventilation system in sportsmen with DMS, connected with their professional activity.

The work was submitted to international scientific conference «Priorities for Science, Technology and Innovation», (Egypt), 15-22 August, 2010, came to the editorial office on 04.08.2010.

THE TEENAGERS OBESITY COMPLEX MULTIFACTORIAL REHABILITATION IN COMBINATION WITH THE ARTERIAL HYPERTENSION

Ozheva R.Sh.
The SEI HPE Medical Institute of «The Maikop State Technological University», the Republic of Adygei, Maikop
e-mail: sergey-prof@mail.ru

The carbohydrate, the lipid, and also the other metabolism types' disorders complex combination diagnostics challenges are being caused the great scientific and the considerable practical interest, and their role discussion in the chronic diseases pathogenesis of the internal organs in the last and the recent years.

In this connection, the epidemiological researches and the studies currency is quite understandable, with the purpose of the earliest detection and its diagnosis of the risk factors, and the prophylactic arrangements commencement. For all this, it is quite necessary to be taken into consideration and such fact, that the arterial hypertension (AH), the overweight (ORW) human body, the lipid spectrum violation are often being passed against the background of the exo – and the endogenous intoxications [1, 3].

Thus, the main challenge is being confronted before the human organism – the normal homeostasis preservation, and also its optimization [2], at the endogenous intoxication. By V.M. Dilman expression, «the law deviation of the homeostasis» is being begun to be worked.

Thus, the work's target has been the complex endo-ecological rehabilitation influence study and the examination upon the risk factors of the chronic non – infectious diseases.

The Material and the Method

The complex rehabilitation program has been consisted in the following approaches: the

individual diagnostics, the basic teaching program, the video – and the printing information; the life style correction, the human organism cleaning and the purification, the human body mass normalization and the ABP, the entero-sorption, the bio-stimulation, and also the anti-oxidant therapeutics carrying out, the medicinal starvation and the therapeutic fasting, the hypo-caloric diet, and the medicinal herbs, the massage, the manual and the music therapy application. The complete medical treatment course has been continued 456 hours.

So, the 43 patients with quite different obesity severity degree, in the combination with the arterial hypertension (AH) have already been examined: the male youngsters – 28, and the female youngsters – 15. Then, the Quetelet index has been calculated, in order to be evaluated the human body fat mass accumulation degree, as the human body mass correlation, having expressed in the kilograms to his height, which is being expressed in the metres, having squared, that is the Quetelet index = MT (kg): the Height (m^2).

The obesity abdominal type has been stated by the waist measurements (WM) correlation size to the thighs volume (TV). It is less 0,95 at the male youngsters, and it is less 0,80 at the female youngsters in the standard.

The arterial pressure (AP) has been measured by the Korotkov method, whereupon the average arterial pressure has been calculated by the following formula: APav = (Aps + 2 APd)/3 [mm Hg], where the APs – the arterial pressure systolic mm Hg., the APd – the arterial pressure diastolic mm Hg.

The Leukocytic Index of Intoxication (LII) is usually being calculated by the Ya.Ya. Kalf – Kalifa formula:

$$LII = (4MI + 3U + 2P + C)\times(PL + 1)/(L + MOH)\times(Э = 1),$$

and the Intoxication Index (II) – by the neutrophils to the lymphocytes correlation (e.g. at the healthy ones up to 1,5). The lipoproteids fractions: LDL, VLDL, HDL [1] have been researched at all the examined ones. The 30 people have been made up the control group.

The obtained results have statistically been processed, by means of the t Student criterion.

The Results and Discussion

The examined females youngsters have got the highest Intoxication Index (II) from 2,06 up to 3,7 at the physiological oscillation up to 1,5; LII – 1,8 (e.g. at the healthy ones up to 1,0) in the pre-rehabilitation period [4].

So, the highest II has already been registered from 2,09 up to 4,0 at all the male youngsters, having entered into the rehabilitation group. Then, the abdominal obesity has been taken its place at the 54% male youngsters and the 45% female youngsters.

Thus, the initial high II at the male and the female youngsters with the abdominal obesity in the examined group is the main criterion, having reflected the adaptive systems violation, having needed the direct monitoring, at the endo-ecological rehabilitation carrying out.

So, the most informative ones have been: the human body mass increase (e.g. 100%), the arterial hypertension (AH) (e.g. 80%), the memory impairment (e.g. 64%), the general weakness (e.g. 85%), the dyspnea or the short breath (e.g. 36%), the headache (e.g. 66%), the sleep disturbance (e.g. 65%), the intestinal malfunction (e.g. 58%), and 40% patients have registered the dysorexia at themselves at the 15 per cent from the number of the examined ones, at the clinical indicators analysis.

All the given indicators will have to be taken into account, at the persons with the human body overweight mass, in combination with the arterial hypertension (AH), during the complex endo-ecological rehabilitation carrying out. All the same indicators are quite to be served, as the efficiency criteria of the carried out arrangements.

So, the LDL, VLDL, HDL have been within the limits of the physiological oscillations in the female youngsters group, in comparison with the control one, and they have been made up $0,83 \pm 0,07$ mmol/l (e.g. $P > 0,05$), $1,4 \pm 0,02$ mmol/l (e.g. $P > 0,05$), $0,57 \pm 0,02$ mmol/l (e.g. $P > 0,05$), correspondingly.

The changes in the lipid spectrum with the LDL, VLDL, HDL insignificant increase up to $2,13 \pm 0,07$ mmol/l (e.g. $P > 0,05$); $1,86 \pm 0,017$ mmol/l (e.g. $P > 0,05$); $0,77 \pm 0,02$ mmol/l (e.g. $P > 0,05$), correspondingly, have already been revealed at the male youngsters.

The II has been down to 2,0 (e.g. for 24,5%, $P < 0,001$), as a result of the rehabilitation complex program.

So, the dynamical observation for the human body change in the mass had been shown, that it appeared the decrease was equal to 8,4 kg (e.g. 10,3%, $P < 0,01$) or 0,45 kg/day for the whole medical treatment course, in average.

Then, it has been noted, the patients' considerable quality life improvement, and also the

complaints number decrease for the 87%, as a result of the complex non-medicamental and the non-pharmacological program application.

And the arterial pressure complete normalization has been noted at all the male and the female youngsters.

Thus, the rehabilitation arrangements complex with the diet calorie content restriction is being accompanied by the endo-toxicosis degree decrease, by the complaints number decrease, by the life quality improvement, and also by the hemodynamic parameters normalization. So, the risk absence for the patient's health is being dictated the possibility to be recommended the rehabilitation complex for the wide – scale introduction and the further realization into the public health practice.

The Resumes

1. The human body overweight mass (HBOM) presence, AH, the II increased, and also the lipid spectrum violations are the most convincing criteria for the complex endo-ecological rehabilitation carrying out.

2. The complex rehabilitation program with the hypo-high-calorie diet is the quite enough efficient approach for the multifactorial prophylaxis carrying out of the chronic non-infectious diseases.

References

1. Zborovskaya I.A., Bannikova M.V. The Human Organism Anti-Oxidant System, Its Value in the Metabolism. The Clinical Aspects // The RAMS Herald. – 1995. – № 6. –P. 53–60.

2. Ivanova I.L., Luchaninova V.N., Gnedenkova L.G. The Biological Liquids Researches at the Children with the Respiratory System Diseases // The Clinical and Laboratorial Diagnostics. – 1992. – № 7-8. –P. 45–47.

3. Makarova N.P., Konicheva I.N. The Endogenous Intoxication Syndrome at the Sepsis // The Anaesthesiology and the Critical Care Medicine. – 1995. – №6. – P. 4–6.

4. Malakhova M.Ya. The Endogeneous Intoxication Registration Method // The Manual for the Physicians. Saint – Petersburg, The MAPO Publications Collection. – 1995. – P. 33–50.

The work is submitted to the International Scientific Conference «Science and Education in The Contemporary Russia», Moscow (Russia), 15–18 November, 2010, came to the editorial office on 14.10.2010.

LYMPHOID OR HAEMOPOIETIC ORGANS?

Petrenko V.M.
International Morphological Centre, St.-Petersburg
e-mail: deptanatomy@hotmail.com

More centure bone marrow was considered as part of bones, spleen was classified to alimentary system, thymus – to endocrine glands, lymph nodes – to lymphatic system. The first International Histological Nomenclature contained division «Haemopoietic organs» – bone marrows, spleen, thymus. In new International Anatomical and Histological Terminologies all seats of haemopoiesis are united into lymphoid system by their immunopoetic function. This aggrigate can be to definite only as lymphoid apparatus. Bone marrow, aggregated and solitary lymphoid nodules are not independent organs. Red bone marrow and spleen are mixed haemopoietic organs by their structure with predominance of myeloid tissue, which form in connection with venous sinuses. Thymus and tonsils arise as congestion of epithelial and mesenchymal cells, later they transformate into lymphoepithelial organs. Lymph nodes arise as interweavings of lymphatic and blood vessels by means of invagination of blood vessels into the lymphatics, connective tissue between them transformates into lymphoid tissue. I think that it shoud be to discern «haemopoeitic organs», which are divided on myeloid-lymphoid (bone marrow, spleen) and lymphoid (thymus, lymph nodes, tonsils). Myeloid-lymphoid organs have row of important structural features – extralymphatic (parenchyma don´t connects with lymphatic bed, it is related to thymus and tonsils too), sinusoidal (venous sinuses as paths away of blood cells), periarterial (by localization of lymphoid elements). Lymphoid organs contain high endothelium venules – paths of lymphocytes recirculation between primary and secondary lymphoid organs. Cortex of thymus looks like spleen on paths of lymphocytes influx in the organ.

LOCAL INHIBITION OF BLOOD FLOW AS PRE-CONDITION OF FORMATION OF HAEMOPOIETIC SEAT

Petrenko V.M.
International Morphological Centre, St.-Petersburg
e-mail: deptanatomy@hotmail.com

Mechanic of anlage of haemopoietic organs is not described in literature. Anlage of lymph nodes takes place when blood vessels with their