

ANALYSIS OF MONITORING PROGRAMS OF PHYSICAL DEVELOPMENT AND PHYSICAL PREPAREDNESS OF CHILDREN ACCEPTED IN DIFFERENT COUNTRIES

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Abstract

The results of complex monitoring researches, that allow to follow the dynamics of indexes of physical development and physical preparedness of different population age groups, can be used as an efficient means of implementing actions on maintaining and strengthening health including those connected with prophylaxis of sick rate. The aim of research is to analyze various monitoring programs of physical development and physical preparedness of children accepted in different countries. The method of comparative analysis of literature sources has been used in the work. During the last years, in connection with the growing level of computerization new approaches of problem solution have been demanded. The basis of this progressive technology is computer monitoring of physical development and physical preparedness of children, that allows:

- *To form data base on physical, somatic, psychological health of pupils*
- *To carry out comparative analysis according to the years, which allows to follow the dynamics of pupils' health*
- *To give a possibility of continuous longitudinal observation of big children and teenager groups on the basis of unified testing methods*

Key words: *monitoring, physical development, physical preparedness, testing, computer programs*

Introduction

Being the most important value of a person and society, health belongs to the category of state priorities. On the basis of the resolution of Minister Cabinet of Latvia on February 21, 2005, No.123 the National Program of Sport for the years 2006 – 2012 was accepted (2006). The main aim of the Latvian state sports politics is health of the population, physically and spiritually developed personality. The main aim of the Latvian state agency of sports medicine is also maintenance and strengthening of physical and mental health of children, formation of steady stereotypes of healthy way of life of the population. The main directions and tasks of State agency of sports medicine are as follows: assessment of physical and functional capacity for work of children and teenagers (educational, coordinational and practical work); assessment of the situation in the state; development and introduction of the program on standardisation of assessment of children's physical development and their health improvement. (A public survey of sport medicine state agency in 2006. 2007) The aims and the tasks are the same, but nowadays there is no activity coordination in the issues of realisation of the tasks. Thus there are contradictions between:

- The existing potential of significant scientific and methodological experience, assessment of physical and functional capacity for work of children and teenagers and limited usage of programs on standardisation of assessment of children's physical development and health improvement in the process of school physical education.
- Necessity in increase of health improvement and prophylaxis efficiency of physical education of school-age children and absence of regular systematised reliable and objective information on dynamics of health and mental – physical state of pupils.

Certainly, twice a year school nurses measure pupils' height, weight, control the frequency of illnesses, posture disturbances, etc. However, the service of school doctor control has been

destroyed, we mean here annual obligatory health control of children. Obligatory health control allowed to catch even slight differences in rate or direction of growth and development and not to miss the moment of early lagging in development of child.

Realisation of health improving events at school is not a united complex system today. The problem is that there is no system of collection, maintenance, analysis and usage of the acquired information to solve the problems of health maintenance. The most difficult moment is systematisation and summarising of the acquired data, their visual registration and observation of any dynamics. There is no system of feedback between organisers and people who carry out the research. Special attention should be paid to the issues of complex defence of children's health putting priority on prophylactic events, development of multi – disciplinary and in – branch cooperation (Brian, M., Mader, U. 2004).

One of such events could be a system of monitoring of children's physical health. The term "monitoring" means complex system of observations, assessment and prognosis of changes in state of complicated organised objects, e.g. biospheres. The data of monitoring allow to determine permissible loads, introduce restrictions (rate setting) for different influences, etc. (Encyclopaedic dictionary, 1995)

Health monitoring is dynamic screening – diagnostics of physical development, functional reserves of organism, neuro – dynamic indices of nervous system, mental state, individual constitutional peculiarities, adaptive (reserve) possibilities, way of life and heredity, that determine viability of organism. (Gavrilov D.N., Komkov A.G., Malinin A.V. and the other. 2007).

Constant dynamic observation is monitoring of physical state of population that is necessary for prophylaxis and strengthening of health by means of physical culture, and its conduction occurring everywhere demands methodological, organisational, economic and informational provision. The aim of research is to analyse various monitoring programs of physical development and physical preparedness of children accepted in different countries.

Health programs and principles of testing of physical preparedness, accepted in different countries.

It is economically profitable to invest money rather into primary prophylaxis of illnesses, formation of need in healthy way of life, creation of conditions for that and support of health than into treatment medicine. All the developed countries follow this particular way, implementing their programs of health protection of the nation, where the main role belongs not to the system of public health, but to different public organisations, educational institutions of all the levels, educational programs, mass media (EUROFIT method.2007). Sociological survey conducted in some countries has shown, that physical image of a person is the most important personality index for 85% of respondents of the USA (School Health. 1987). In organisation of system of care of children and teenagers' health there is something to accept from foreign experience. For instance, a set of health programs at American school is in general similar to ours, but we can pay attention to personality – centred approach: the main attention is devoted to characteristics of pupils' problems. "Dynamic display of a pupil" (analogue of our "Passport of Health" or "Card of Health") includes the main problems of development of a child. We can distinguish two periods in children's life, that demand special care: pre-school – primary school period and teenage period. During the first period the most attention is devoted to definition of children's readiness to study at school and their adaptation to the beginning of study. During the second period the following teenagers' problems are considered: delay and acceleration of sexual maturity, wide-spread deviations, skin problems, menstruation hygiene and early pregnancy, correct sexual orientation, social problems and problems, connected with lifestyle (obesity, attitude to sport, smoking, alcohol, emotional problems). Physical culture takes an important place in the American program "Health of pupils". It is noted, that regular sports exercises prevent development of heart diseases, lungs diseases, hypertension and obesity, relieve diabetes, asthma, epilepsy and besides sport is an antidote to

physical stress in the modern world. The main way how to develop a habit of regular during your life sports exercises is to have sports lessons 3 times a week. They assume three types of regime of motive activity (analogous to our health groups to some extent) for “exercise groups” – basic, preparatory and special medical ones (Obesity in Europe. World Health organization Regional Office for Europe. 2007). At present there are several physical preparedness testing programs accepted in the USA:

- Test of the American union of physical education and health. Testing is carried out during two lessons of Sport.
- Assessment test of level of youth’s preparedness (President’s Council on physical preparedness, 1961).
- Assessment testing of physical preparedness level of girls, who study at secondary schools (Department of women’s sport in the American association of health, physical education and recreation).
- Californian assesement test of physical preparedness (Department of national education, California). It can be used to test 10-18-year-old pupils of both sexes.
- Assessment test of physical preparedness level of young men, who study at high school or college (Department of national education, Indiana).
- Programs of tests, that characterises physical preparedness of 6-17-year-old children and teenagers. (President Council on physical preparedness and sport, 1987). (Makarov G.A.,Loktev S.A. 2005).

This way, in the American program “Health of pupil” the personality of a pupil is in the centre of attention, as well as lots of actual personal problems of pupils are considered, which are perceived as data for immediate practical removal. This also relates to the problem of lagging in physical development and sexual maturity (Obesity in Europe. World Health organization Regional Office for Europe. 2007).

From 1991 there is a whole network of health school in Europe. The network Schools for Health in Europe (SHE) has strong grounds. Nowadays Europe numbers 43 countires – participants of SHE. SHE network has a positive concept of health and welfare, as well as admits UNO Convention of children rights and European Convention on children rights. Health promoting school is a school, that realises structural and systematic plan on provision of health, welfare and development of social potential of all the pupils, as well as teachers and school personnel. Health promoting schools have shown evident improvement of state of health and welfare among school communities. The 3rd European Conference on health promoting schools “Better Schools through Health” (School improvement via maintenance and strengthening of pupils’ health) was held in June 2009 in Vilnius, Lithuania. 300 representatives from 31 countries of Europe took prt in the conference (Vilnius Resolution 2009).

In health promoting schools health, education and development of children are closely correlated. Health promoting schools work successfully only in that case, if their efforts are systematic. The results (both in health and teaching) can be mainly seen in the medium- or long-term periods. The main task of school is maximum results of teaching. Health promoting schools improve the processes of teaching and studying. Healthy children study better, but healthy teachers and healthy school personnel get more satisfaction from their work. Schools for Health in Europe are provided by the information on existing and new researches and proofs, concentrated on effective approaches and practice in the sphere of strengthening and maintenance of pupils’ health, for example, mental health, nutrition and comprehensive approaches (School Health. 1987; Brian, M., Mader, U. 2004; Myers T., Griggs G. 2004; Obesity in Europe. 2007).

In 1987 European consulting commitee on sport development, in the system of which “Eurofit” was created, developed unified methods of control over physical preparedness of 11-23-year-old pupils. From 1995 to 2002 this program was tested in Lithuania, Estonia and Latvia. The

given methods assume testing of physical features (common endurance, power and power endurance, rapidness, flexibility and ability of balance) and anthropometric indices (length, mass of body and thickness of five basic skin – fat folds). (Eurofit for Adults – Assessment of Health related fitness 1995; Eurofit test results in Estonian and Lithuanian 11 to 17-year-old children: a comparative study.2005; EUROFIT method 2007).

In the framework of the project from 1995 to 2002 in Latvia the program of European test of physical preparedness was tested (Eurofit, 1988). Unfortunately, after the project finished, mass research was ceased. As the disadvantages of this project could be considered the following issues:

- Functional possibilities of children's organism were not considered in the program;
- The common assessment of pupils' physical preparedness is deduced, which does not reflect the real situation; total calculation of points does not give the objective picture on every specific index, which makes it difficult to develop individual recommendations;
- Unfortunately, 7-11-year-old children do not participate in testing according to the given methods (it is considered, that some of the suggested tests are inaccessible for such small children);
- Summarised data on the results of testing are published, there is no feedback (administration, parents, pedagogical staff, pupils).

The experience of youth organisation of health protection in Portugal has been rather interesting. In the country a lot of attention has been devoted to the issues connected with provision of pupils' healthy way of life for more than 20 years. Their hygiene education is mainly directed to the development of children's habits of healthy nutrition, correct care of teeth, sexual education and prevention of alcohol and tobacco usage. At present in Portugal pupils's health protection has different forms, including events on illness prophylaxis and maintenance of their health. State assessment of efficiency of the program is implemented every year. Absolutely different issues are observed in order to achieve this aim: the influence of the program on children's progress in studies, organisation of school nutrition, sport, etc. According to the results of 2006 in 96% of health promoting centres "school groups of health" were organised, with 755,500 pupils from 7,500 primary and secondary schools, as well as 148,000 children from 4,400 pre-school institutions. About 76% of 6-year-olds and 37% of 13-year-olds participated in medical examinations, including those of hearing, eyesight, state of posture – motive apparatus, development of functions necessary for school, etc. 63% of schools were inspected to check if they confirmed the standards of safety conditions, as well as hygiene and health promotion, and in 24% of schools conditions improved in comparison with the previous assessment. As this program creates conditions, that promote success of the projects on school and public health, it has been approved by Minister of Health. (Vilnius Resolution 2009).

The issues of pupils' physical health has been actively discussed in Russia recently. The government of the Russian Federation accepted the resolution "About common Russian monitoring system of state of physical health of population, physical development of children, teenagers and youth" (December 29, 2001). A prospective form of realisation of tasks of protection and strengthening of pupils' health in the framework of a new stage in the reform of education in Russia must be purposeful complex program "Education and health". (Kolesnikova, M.G. (2000; Izaak, S.I. 2004; Polyakov S.D., Hrushev S.V., Korneyev I.T. and the other. 2006; Gavrilov D.N., Komkov A.G., Malinin A.V. and the other. 2007). The Institute of Age physiology of Russian Academy of Education took the most active part in the development of this program. The main concept regulations of the program "Education and health" are as follows:

1. the program is suggested to realize the main ideas of Declaration of Children Rights, directed to health protection and acquisition of education full of value;
2. the program is a confirmation of special status of childhood as a period independent on social, political, national, religious and other differences;

3. the program is among priority directions of activity of authorities and serves as basis for cooperation and consolidation of education and health authorities, the public of schools and parents.

We have to emphasize, that specialists of the Institute of Age physiology of Russian Academy of Education have worked on the development of the present problem for many years. Lately we need new approaches in connection with the growing level of computerisation. To considerable extent they were realised by scientific firm ONIKS – health improving scientific informational computer system, that has considerable experience in the development of health promoting computer technologies. This firm has been working in the sphere of physical education and promotion of population's health, including children for 6 years. One of the ideas of this firm is a computer program "Kiddy", that was approved in 1995 and it was recommended by the government of Moscow for usage in pre-school institutions as means of monitoring (Gavrilov D.N., Komkov A.G., Malinin A.V. and the other.2007). At present work on the program "Valeology of a pupil" has been finished, this program provides monitoring of physical development of children and teenagers, and it is a component of the present project (Kolesnikova, M.G. 2000). The scientific – research institute of hygiene and health protection of Russia takes an active part in the international cooperation. During the last five years the results of the activity of the institute are as follows: creation of the Russian society of school and university medicine and health (the chairperson - Doctor of Medical Science, professor V.R.Kuchma) and entry into European Union of School and University Health and Medicine (EUSUHM); the Institute is a national centre of support of the project network "Schools for Health in Europe" (SHE) (the national coordinator of network – Doctor of Medical Science, professor V.R.Kuchma); cooperation of the institute with United Nations Children's Fund (UNICEF) in the project No. 08/26 "Harmonisation and development of standard – methodical base and network of Russian health promoting schools". The institute has concluded scientific cooperation agreements with: a state institution "A.N.Marzeyev Institute of Hygiene and Medical ecology of the Ukrainian Academy of Medical Science" (Ukraine); Belarus Medicine Academy of post-graduate education (the Republic of Belarus); a state institution "The Republican Scientific – practical centre of hygiene" (the Republic of Belarus 2009).

Conclusions

Practical significance of results of monitoring researches is defined by usage of computer processing version of testing results called "passport of physical health", that allows to assess physical preparedness of pupils; to fill the data base after testing; to make constant corrections during the studying process actively; to implement detailed analysis of testing results, giving personal correction programs of physical exercises to pupils.

Unfortunately, the present technology is not used in the system of state education of Latvia yet. Till the present moment a united system of constant observation, assessment and control over physical state of pupils has not been created. There are practically no correction programs on health improvement of children and pupils with low level of physical development and physical preparedness. In connection with that development of monitoring system of testing, assessment, control and management of physical education in educational institutions with the usage of computer technologies is topical, but its introduction into studying process will promote health strengthening, increase of the level of motive preparedness, formation of interest towards physical culture and sports activity, it will allow to strengthen prophylaxis work on protection of children's health. However, the presented model must be controlled and financed by state system of health care.

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