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# ТЕХНОЛОГІЇ, ІНСТРУМЕНТИ ТА СТРАТЕГІЇ РЕАЛІЗАЦІЇ НАУКОВИХ ДОСЛІДЖЕНЬ

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# **MODERN APPROACHES TO EFFECTIVE PROGNOSTIC ASSESSMENT OF THE STATE OF HEALTH, FUNCTIONAL CAPABILITIES AND ADAPTATION RESOURCES OF THE PUPILS AND STUDENTS**

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Modern approaches to effective monitoring and prognostic assessment of the state of health, functional capabilities and adaptive resources of pupils and students provide for the solution of a number of extremely important issues and are an integral component of a comprehensive study of the state of mental and somatic health of a person and the peculiarities of its dynamic changes in connection with the impact on the human organism of educational and professional, social, everyday and natural factors, as well as the development on this basis of scientifically based measures for active impact on the human body and its environment [1, 2. 3. 4. 5].

Carrying out an adequate prognostic assessment of the state of health, functional capabilities and adaptive resources of the human organism of girls and boys, young women and young men who are studying, in accordance with modern realities, in accordance with modern realities, involves: determining criterion indicators of the state of psychophysiological functions (characteristics of higher nervous activity, attention, visual sensory system, somatosensory analyzer, etc.) and personality traits (characteristics of temperament, anxiety, character, motivational orientation, emotional burnout, etc.); establishing the main periods of determining the leading indicators of mental and somatic health (the beginning and end of the educational process, changes in the main directions of educational activities, for example, from medical-theoretical to clinically significant, etc.); taking into account sensitive periods of development of psychophysiological functions and personality characteristics; establishment of features of educational and extra-curricular significant components of educationally conditioned load on the leading correlates of higher nervous activity (ordinary daily educational activities, implementation of final control of knowledge, examination stress, independent testing, etc.); quantitative measurement and qualitative assessment of the degree of development of indicators of the state of psychophysiological functions and personality traits; assessment of the level of development of individual indicators of the development of psychophysiological functions and personality traits, as well as characteristics of the quality of life; development, unification and scientific substantiation of integral indicators and scales for point assessment of the functional state of the organism of children, adolescents and young people.

In addition, prognostic assessment of the state of health of pupils and students requires the determination of the most adequate tools for probabilistic prediction of both physiological and pathological changes that may occur and involve forecasting based on the use of statistical models or on the basis of the use of expert systems. Statistical methods used in everyday practice, according to their purpose, should be divided into methods of extrapolation or adequate prediction (regression analysis), classification (discriminant and cluster analysis) and structuring (factor analysis and multidimensional structural

modeling), according to the initial idea about the structural features of the investigated features – into correlative (regression, factor and discriminant analysis) and distant (cluster analysis and multidimensional structural modeling) methods, especially types of initial data – to methods that use as initial data only the characteristics that are determined in a group of objects (regression, factor and discriminant analysis), and methods that use as initial data features of similarities or differences between objects (cluster analysis and multidimensional structural modeling).

At the same time, the application of expert systems is based on intellectual technologies represented by directions based on independent theories, namely: fuzzy logic (means of formalizing natural language statements), neural networks (artificial analogues of the human brain that simulate the ability to learn) and genetic algorithms (a method of synthesizing optimal solutions from a set of initial options).

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