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PHYSIOLOGICAL OBJECTIFICATION OF THE REFERENCE CARDIAC CYCLE OF A SINGLE-CHANNEL ECG's PARAMETERS USING THE ALGEBRAIC MODEL OF CONSTRUCTIVE LOGIC

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Identify the level of functional reserves of the myocardium and quantitative assessment has important diagnostic value in the timely prevention of heart disease, with optimal dosing of physical exercise, sports tensions and determining the effectiveness of rehabilitation measures. The indicators of the reference cardiac cycle can be used as a estimation criterion of the functional reserves of the myocardium and efficiency of correction influences, and the construction of a mathematical model using algebraic models of constructive logic (AMCL) is an effective method of change markers verification.

Multivariate analysis, including algebraic model of constructive logic, is often used in medical practice and biological research. To carry out such studies, it is necessary a array of source information (analyzed cases) and purpose, which is most often selected one of the values of the factors. At the same time, in the practice of analytical calculations there are cases when the target value cannot be set explicitly. The proposed method is based on counting the number of instances of each value of each factor and their share in the total number of cases. The product of the assessed values of each involved factor, compared with the set of the threshold value, determines a value corresponding to the achievement of the goal. To confirm the proposed method on the array of 7440 indicators, the authors built a mathematical model using algebraic model of constructive logic. Evaluation of a mathematical model confirmed the performance of the proposed method of calculating the target value, since the simulation results are most consistent with known estimates obtained by other methods.

At the same time, the presented analytical calculation is an analysis technique and, as the initial data accumulates, allows us to refine the results. The values of the factors identified in the bands can be considered as the criterion of deviation from the optimal functioning, and the indicators adopted in this analysis as factors, characterized as a decrease in indicators of functional reserves cardiohemodynamics regulation among students of 10–16 years old. The indicator of the RMS β_T of the phase portrait of the single-channel ECG , the parameters of the reference cardiac cycle – T / R (unit), ST offset (ms), duration of the T wave of the reference cardiac cycle and heart rate variability CV (%) can be considered as informative indicators of increased the risk of cardio-hemodynamic functioning's pathology.

***Keywords*:** reference cardiocycle, algebraic model of constructive logic, cardiorespiratory system, the range of physiological functioning.

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