

## *Computer Systems for Health and Longevity.*

A complex of computer systems for diagnostics and prophylaxis of aging, for general improvement of health and bioactivation have been developed by the NGC, together with the Sechenov Moscow Medical Academy and other cooperating organizations. A family of computer systems, imitating operation of medical and laboratory equipment, supplying lab work for universities and scientific research has been created. The systems contain constantly renewed reference books, methodic recommendations and detailed manuals.

### **Complex of computer systems for health and longevity:**

- “Diagnostics of aging: bioage”;
- “Diagnostics and prophylaxis of aging”;
- “Nutrition for health and longevity”;
- “Diets for beauty and health”;
- “Systems for estimation of psychic working capacity”;
- “Biorhythms and galvanoelectroacupuncture”;
- “Stress-Plus”;
- “Antistress”;
- “Healing herbs”;
- “Physical health”.

As well we have worked out an electronic manual “Gerontology and geroprophylaxis”, intended for clinics of anti-aging medicine and health centers. These systems help the physician to solve the whole complex of very important tasks in diagnostics, prophylaxis and treatment.

The first step is the detailed evaluation of health status, speed and individual features of aging:

- Conducting detailed diagnostics of aging process at the individual level.
- Defining biological age and aging speeds for separate important systems and for the whole organism.
- Evaluating such most important integral health characteristics, as physical and psychic capacity for work.
- Evaluating the quality of operation for organism regulatory systems and its biorhythmological balance.
- Characterizing individual requirements for human rations, the quality of nutrition and deficiency of nutrients, existing in the rations.
- Estimating the level of stress and ability of the organism adaptation systems.
- Evaluating the dynamics of change in above-mentioned organism characteristics under the influence of different means improving health, geroprotective means and methods.

The second step is to create an optimal for client scheme on the basis of individual diagnostics of health improvement, prophylaxis, retardation of aging and increasing the active happy life period:

- Selecting geroprotectors, the most effective means for preventing aging, which affect the mostly vulnerable and quickly aging organs and human organism systems;
- Forming the optimal for the given person diet giving a maximal healing effect and providing greatest increase in expected duration of healthy life;
- Selecting the most effective regime for physical loading;
- Correcting the biorhythmologic profile of the organism and balance the operation of regulatory systems;
- Performing anti-stress therapy;
- Carrying out the individual selection of the healing herbs complex and optimizing the composition of food supplements complexes.

### **Popular level complex of computer systems:**

- “Testing individual aging”,
- “Physical health at popular level”,
- “Diets for beauty and health at popular level”,
- “Stress and adaptation”,
- “Homeopathy for all”,
- Selection of food supplements (“Health corrector”).

The systems are meant for broad application at home, and also for the purposes of sanitary and hygiene education and development of geroprotective mentality of the population. The systems functions are clear from their names. The systems are made by simplification of professional schemes to get the possibility of their employment by persons having no medical education, retaining in it the same quality and scientific validity of the used algorithms. The systems allow an each person to solve a number of important problems of self diagnostics and health correction as well as retardation of aging. These programs may be offered among the other means of improvement to the clients of health of anti-aging medicine clinics and health centers along with the home use.

One more system is developing: “Cancer computer self-testing”, which make people to draw attention on inconspicuous signs cancer and to think about more thorough investigation.

### **Virtual instruments (VI) for the processes of educational and research activities, as well as to improve the health and empowerment active employment of older and disabled people.**

Virtual instruments are a powerful tool for improving health and empowerment of active employment of older and disabled people. VP allow disabled and elderly at home a wide range of activities: training, repairs, research, health monitoring.

Virtual instruments (VI) are the professional level computer systems, which imitate the laboratory and diagnostic equipment.

Laboratory (practical) work is the basis of teaching at the universities. Meanwhile, there is no production of specialized cheap and variable equipment of medical and biological profile, aimed for equipping educational process. High school needs greatly modern research and teaching equipment, satisfying a number of requirements. They have to be:

- Modern;
- Cheap and compact;
- Offering possibilities for creating an interface, useful and adequate to tasks of teaching, in particular presenting the results of work on great screen;
- Providing imitative forms of work, useful for distant forms of education;
- Modularity, polifunctionality and easy reconstructing for concrete tasks of scientific research and educational process;
- Having possibilities for use of a wide spectrum of modern highly sensitive sensors of biological signals;
- Having great possibilities for registration, computer processing and data analysis.

VI, developed by the NGC in cooperation with the Sechenov Moscow Medical Academy, present a new type of the research and teaching equipment, satisfying to the above mentioned requirements. They possess a great innovation potential and raise the educational process to a new quality at a higher level. Reaching this level was caused by new possibilities, presented by virtual instruments to the educational process, and also by providing the operation of the student’s research circles and conducting research at high schools. They are:

- Due to its low price, possibility for providing not only the elite, but also the periphery high schools.
- Possibility of providing each student with the personal assignment with a wide spectrum of modern equipment and instruments.
- Wide and deep usage of abilities of modern computers in generating, registration, analysis and display of biological signals.
- Realization of teaching methods in the form of a so called “case-technology” for a distant education.

**The following complex of VI was created In NGC:**

- “Cardiointervalography” (variative pulsometry),
- “Signals in biomedicine”(9 virtual instruments),
- “Bio-laboratory (BIOLAB)”(8 virtual instruments),
- “BIOMETRY” (10 virtual instruments).