

MEDICAL RESEARCH PROGRAM OF 'SOYUZ T-10' CREW

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[Unattributed report: "An Extensive Research Program"]

[Text] And so, a physician, candidate of medical sciences O.Yu. At'kov, is now a member of a space crew. His presence on board has resulted from the extensive program of medical and biological research. At the request of a MEDITSINSKAYA GAZETA correspondent, one of the leaders of the medical support facilities for the mission, member of the USSR Ministry of Health Collegium, doctor of medical sciences Ye.B. Shul'zhenko, talks about some aspects of the program.

About 20 years have elapsed since the first flight by physician-cosmonaut B.B. Yegorov (with V.M. Komarov and K.P. Feoktistov) aboard the three-man "Voskhod" vehicle. At that time it was important to broaden our ideas about the effect of weightlessness and other flight factors on the human body. Now cosmonautics is reaching for new frontiers. And the physician aboard the space vehicle has much work to do.

Among the set tasks are those that are traditional and always on the agenda and planned for every mission. The study of the effect of weightlessness on the human body will be continued. The researchers' attention has been focused on the state of health and the work capacity of the cosmonaut at different stages of flight, and studies are being conducted on the functional status of the mechanisms regulating central and peripheral hemodynamics under the conditions of prolonged missions in circumterrestrial orbit.

Studies of the mechanisms involved in the space form of motion sickness and the interaction of the analyzer systems and analysis of metabolism are extremely important.

In this flight too, we shall constantly observe the state of health of the cosmonauts with the aid of telemetry equipment. The presence of a physician in the crew brings new elements to this part of the program: there will be opportunities for constant medical observations and self-observation, and also for evaluating the state of health and work capacity of all crew members right there aboard the vehicle.

At the same time a number of new experiments have been planned, while some studies conducted earlier are acquiring a qualitatively new significance.

For the first time a determination of the blood electrolytes will be made directly during a flight. Having analyzed blood taken from the crew members, using the "Biokhim" instrument the physician will make current evaluations of their results. This will make it possible to obtain information about the effect of flight factors on the status of mineral metabolism in the body and determine some of the regulatory mechanisms that affect the development of negative electrolyte balance in the blood.

The aim of the "Optokinez" experiment is to study the body's eye movements and autonomic responses during optokinetic and vestibular stimulation. Evaluations have to be made of the functional status of these systems and a determination made of the patterns in the development and manifestation of dysfunctions observed during flight.

Yet another new experiment--the "Glaznoye dno" ["Fundus oculi"]--will make it possible to study blood supply to the eye during flight. It will be possible to assess the hemodynamic shifts in the fundus from changes in the so-called blind spot.

The aim of the "Sport" experiment is to determine the most effective means and optimal regime for prophylactic training for each cosmonaut, taking into account the individual features of his body.

Of course, this is by no means a complete list of the medical problems that must be resolved during the mission. There is much work to be done. I would like to wish the crew members success and a safe return to their home planet.

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