Space and Cognition:

The Measurement of Cognitive Functions in Space

Th. Benke *, O. Koserenko +, F. Gerstenbrand *

* Neurological Department, University Clinic, Innsbruck

+ IMBP Moscow

Cognitive functions, though essential in the control and research activities of every space personnel, have rarely been measured objectively during previous space flights. Cogimir, an Austro-Russian cooperative project, was designed to study higher cortical functions using computer-generated assessment procedures. General mental status and visuospatial cognitive processing were measured in three cosmonauts during one short and two long-term visits on the Russian orbital complex Mir. With the exception of several nonsignificant fluctuations, inflight and postmission reaction times and accuracy scores remains largely unchanged as compared to preflight baseline values. These results suggest that several behavioral functions, among them psychomotor speed, mental flexibility and complex, visuospatial processing abilities, may be unimpaired on short and even on long term visits, probably due to effective compensatory mechanisms of the brain. Computerized psychometric tasks are sensitive and flexible tools for the assessment of behavioral functions in space life scienes.

Abstracts:

Symposium on Space Life Sciences in Austria, Vienna, Austria, December 2-3, 1992

Symposium: SPACE LIFE SCIENCES IN AUSTRIA - December 2nd & 3rd, 1992 - Vienna, Austria
provisorisches Programm - Stand: 26.10.1992

Session 5 (Chairpersons: J. Wetzig, J. Greenleaf):

HUMAN SENSORY PHYSIOLOGY DURING SPACEFLIGHT
invited lectures - 15 minutes + 5 minutes for discussion

*10.20 J. **Wetzig** (Johannes-Gutenberg-University Mainz): *Unusual environmental conditions and the human vestibular system*
*10.40 G. **Clement** (Tolouse): *Investigation of the vestibular system in microgravity*
11.00 J.P. **Roll** (Marseille): *?*
optional: ... (Gerstenbrand)

11.20 - 11.40 coffee break

Session 6 (Chairpersons: F. Gerstenbrand, N.N. (IMBP))

RESULTS FROM SOVIET-AUSTRIAN COOPERATION - PART 1
10 minutes + 5 minutes for discussion

*11.40 **Bachl** N, Baron R, Kozlovskaya I, Tschan H, Mossaheb M, Bumba W, Kharitonov I, Albrecht R, Hildebrand F, Knauf M, Witt M (Sports center, Vienna): *Development, implementation and results of a translatoric ergometric device on the MIR Space Station*
*11.55 **Benke** Th, Koserenko O, Gerstenbrand F (Univ. Clinics for Neuroplogy, Innsbruck): *Space and cognition: The measurement of cognitive functions in microgravity*
*12.10 **Berger** M, Gerstenbrand F, Burlatschkova N, Muigg A, Grill R, De Col C, Holzmüller G, Koslovskaya I, Borisov M, Babaev B, Sokolov A, Hochmair E, Steinwender G: *Movement disturbances in weightlessness*

12.20 - 14.00 lunch

afternoon sessions

Session 7 (Chairpersons: N. Vana, N.N. (IMBP))

RESULTS FROM SOVIET-AUSTRIAN COOPERATION - PART 2
10 minutes + 5 minutes for discussion

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