

## **THE INFLUENCE OF FLIGHT AT LOW, MEDIUM AND HIGH ALTITUDE ON THE HUMAN BODY**

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### **Summary**

Flight contradicts human condition in its natural data, being at the same time, a source of pleasure and threat, with direct implications for the loss of lives over time amid misunderstanding fully the processes involved in this activity.

Knowing the implications of their hypoxia, pressure, acceleration variations, vibrations and noise are important in the continued development of aircraft and flight equipment to facilitate the mission, the pilot and crew.

Flight is a dangerous and overwhelming activity for the human body and is seen as a severe threat to the security or physical integrity of the individual. Flight contradicts the human condition in its natural data, being at the same time a source of pleasure and threat, with direct implications for the loss of human lives over time due to the misunderstanding of the processes involved in this activity.

**Key words:** hypoxia, decompressive disorders, aeronautical personnel

## **GENETIC MARKERS AND ENVIRONMENTAL FACTORS IN MYOCARDIAL INFARCTION**

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### **Summary**

Interaction of environmental and genetic factors are implicated in complex multifactorial disorder, like myocardial Infarction (MI). To determine the genetic background of MI were used several types of genetic studies (e.g. family studies, linkage analysis and genome wide association studies). In this review, we debate the role of genetic and environmental factor in MI pathogenesis.

**Key words:** Myocardial infarction; Cardiovascular disease risk factors; Genetic markers

## **TRENDS AND FACILITIES IN MEDICAL SERVICE AND SPACE ROBOTICS**

**Prof. dr. ing. Adrian Pisla, Assistant Prof. dr. ing. Calin Vaida**

### **Summary**

Since 2004 space robotics and space applications becomes new direction for the ATC Siemens PLM at the Technical University in Cluj-Napoca. In 2006 was opened the DSSL-Dynamic Systems Simulation Laboratory and in 2008 the Euroavia Cluj-Napoca association was established.

Within the paper are included research development and results together with ideas regarding next generation of space and related to space medical applications into special conditions (micro-gravity, extreme temperatures, weight restrictions, low power consumption and maintenance free solutions).

**Key words:** Space robotics, aerospace medical robotics, Siemens PLM

## **CONFOCAL LASER ENDOMICROSCOPY – A MODERN METHOD FOR IN VIVO HISTOLOGY**

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### **Summary**

Macroscopic images of gastrointestinal tract lesions, visualized during endoscopic examination are always completed and corroborated with histopathological exam, which brings additional information about mucosal changes in the examined lesion. In addition to “standard” methods of mucosal imaging was developed a whole concept of optical biopsy, which includes a bunch of methods that should help performing targeted biopsies, on-site treatment, also should help to decrease the necessity of repeated biopsies or numerous biopsies or to avoid a long time waiting for the biopsies results from the pathologist.

Confocal endomicroscopy is one of the newest techniques, and as if the name suggests, it is a method that combines confocal microscopy with endoscopy and has application in upper and lower gastrointestinal pathology.

There is an open way for this imaging method and the future will bring the possibility to impose confocal endomicroscopy as a tool in standard routine, meanwhile standard histology is the gold-standard.

**Key words:** confocal endomicroscopy, neoplasia

## **THE INCIDENCE OF ISCHEMIC HEART DISEASE IN A GROUP OF PATIENTS WITH COLLAGEN DISEASES**

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Daniela Anghel M.D., Oana Taisescu M.D., Viorel Biciușcă M.D.**

### **Summary**

Our study aimed to highlight the incidence of ischemic heart disease in a group that presented various types of connective tissue disease, patients who developed heart disease as a complication of collagen diseases.

It has been found that the duration and type of the collagen disease and hormonal factors are decisive factors that influence the development of ischemic heart disease in these patients. The ischemic heart disease could be observed as the only manifestation or could be associated with another cardiovascular disease; the most affected category includes patients with rheumatoid arthritis.

**Key words:** ischemic heart disease, collagen disease, complications

## **THE ROLE OF AFM (ATOMIC FORCE MICROSCOPY) IN HIGHLIGHTING THE ANESTHETIC-SURGICAL STRESS**

**Lecturer Cîtto-Iulian Taisescu M.D., Daniela Anghel M.D., Oana Taisescu M.D.,  
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### **Summary**

Objectives of the study consisted of applying AFM technique for studying cell behavior belonging to the vascular-tissue under mechanical stress associated with the shear, both belonging to the surgical, anesthetic and infusion solutions of substances effect on overall strategy and defenses of the body, and possible correlations between the results obtained by the usual clinical and laboratory investigations and provided 3D images of AFM. It was also

taken into account the appreciation of the relationship observation / prediction in the selection of therapy and tracking patient outcomes by classical methods and data from AFM study. AFM issues highlights the activation of defense reactions characteristic pathophysiological mechanisms, may induce proper selection of appropriate therapy time.

**Keywords:** vascular-tissue unit, AFM, stress

## **EXTENDED LYMPHADENECTOMY IN GASTRIC CANCER**

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Cristian Cîrlan M.D., Bogdan Merticariu M.D., Dragoș Surdeanu M.D.**

### **Summary**

Gastric cancer is one of the most common forms of digestive cancers. Although gastric cancer mortality in cancer mortality has dropped, gastric cancer remains a main health problem worldwide. The role of extended lymphadenectomy looms increasingly better, showing that it represents a positive prognostic factor in the survival at 5 years old. We present some reviews from a study conducted on a group of 58 patients that were diagnosed with gastric cancer and were treated surgically.

**Key words:** gastric cancer, lymphadenectomy, gastrectomy

## **APTITUDE AND PERFORMANCE IN PILOTS. MEASUREMENT, RELIABILITY, VALIDITY AND PREDICTION – A GENERAL VIEW**

**Doina Trandafir, psychologist, Violeta Ionescu, psychologist, Ph.D.,  
Vasile Gherghina, psychologist**

### **Summary**

Psychological evaluation in aviation has a long tradition, being one of the ways to effective appreciation of relevant to the individual qualities. It is based on the process of qualitative-quantitative assessment of human characteristics, such the potential performance of specific tasks flight and general adaptation to environmental demands professional. **Measurement.** Psychological evaluation takes into account the general cognitive skills and operational skills. The first category comprises: figurative reasoning based material, numerical reasoning, and verbal figurative reasoning. The second category of assessments comprises: concentration and persistence of attention, perception characteristics, adaptation to dynamic loads, resistance to repetitive and monotonous activities, spatial skills, decision quality, information processing under temporal stress, multi-task operating, memory and learning ability, psychomotor function. In aviation psychology, such measurements are made using psychological tests. A test is efficient for evaluation if it has three important characteristics: reliability, validity and, based on the test results, we made good prediction of further performance (adaptation).

**Reliability.** Reliability is defined as the correlation between the two parallel tests—that is, two similar but not identical tests. The correlation coefficient is a statistical measure of covariation between two variables. In other words, if we test a group of people twice using two parallel tests, a large correlation is expected between the test scores if the error term is small. **Validity.** The most important form of test validity is *construct validity*. This refers to the extent to which the test measures what it purports to be measuring. Does an intelligence test measure intelligence or is the test only a measure of academic performance? There is no simple solution to the problem of documenting adequate construct validity. Many strategies may be used to substantiate that the test actually measures what we want it to measure.

**Prediction.** Predictors for academic adaptation (school) are: the level of intelligence, interests, knowledge, the general level of culture. Predictors for professional (flight)

adaptation are: operational skills (perceptual characteristics, multi-task operating, decision, and coordination of movements). Predictors for organizational adaptation are personality and motivation.

**Key-words:** aptitude testing, psychological testing, test validity, performance prediction.

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