

## Scientific aspect of CISM International Symposium

Physical fitness, sport and health in the armed forces

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### Introduction

Dear honorary guests,  
Dear participants,

I would like to start my presentation with a few general remarks on the mutual relationship between the sports medicine and sports science in the Armed Forces

I'd like to remind two items of the first article 1 of the CISM statutes.

Sport science and sports medicine are terms used by individuals from numerous disciplines, including exercise physiologists, physicians, psychologists, physical therapists, athletic therapists, coaches, and physical educators.

Each of these groups has a specialized field of study and naturally places major emphasis in accordance with their specific interests.

Therefore, knowledge of many aspects of performance is as important as the knowledge of rehabilitation techniques for effective, efficient therapy. Thus, our clinic stresses the relations between exercise physiology, training techniques, sport-specific requirements, and therapy.

Sports medicine and sports science are multispeciality disciplines that support the various echelons of recreation and sport.

These mutual influences you can see at this scheme - by Reid



**1. CISM goals into practise**

- to develop friendly relations between the member nations,
- to establish permanent relationship between the armed forces for the purpose of exchanging ideas and encourage research in the field of physical training and sport.

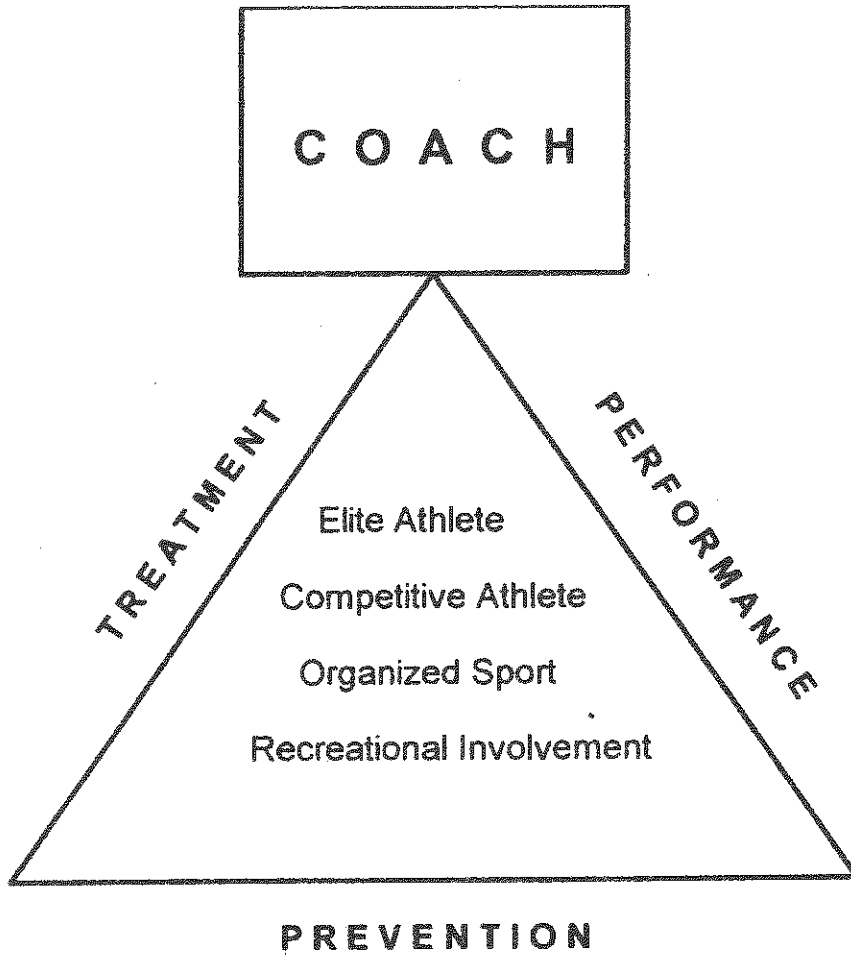
(Article 1 of the CISM statutes)

**2. The mutual influence between Sports Medicine and Sport Science can be exemplified by the following aspects**

- the way sport influences military training;
- competitive sport in the armed forces, and
- institutions that deal with sport in the armed forces

**3. Sports medicine encompasses**

- all aspects of the pathophysiology of activity acquired trauma
- injury treatment and prevention
- implication of disease on activity
- the impact of normal processes such as growth, pregnancy, and aging on performance.



**Sports - Med Team**

Therapist  
Physician  
Orthostist  
Nutritionalist  
Psychologist  
Dentist

**Sports - Scientist**

Biomechanist  
Exs Physiologist  
Sports Psychologist  
Biochemist  
Bioengineer  
Anatomist

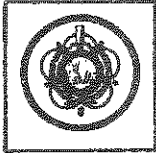


This diagram can explain the multifunction connection between coach - sports medicine and sport scientist. The three arms of the triangle are the base principles of sports medicine : enhancement of performance - prevention of injuries and effective treatment when an injury or illness occur. Therefore you can see the pyramid, which consists of : recreational involvement, organized sport, competitive athlete and elite athlete.

Coach is supported by two groups. The first practical group - sports medicine team - consists of : therapist, physician, orthotist, nutritionalist, psychologist and dentist. The second supporting group - sports scientist team - consists of : biomechanist, exercise physiologist, sports physiologist, biochemist, bioengineer and anatomist. These groups are conducted study and research allow to optimize training loads and construct training program. Sport and exercise sciences are clearly connection in many areas, namely :

One of the reasons for the fast improvement in athletic performances is steady work of researches in the field of sports medicine, sports techniques and equipment. These problems are represented by CISM Permanent Commission for Sport and Sports Medicine.

In Polish Armed Forces we would like to resolve a lot of questions about sports medicine and sport science. In 1994 in Polish Air Force Institute of Aviation Medicine was created the Military Section of Polish Scientific Physical Education Association. The main topics of this organisation are :



#### 4. Research problems in Military training and sports

##### Principal subjects

##### 4.1. Anthropology

- somatic characteristics of athletes practising different sports
- biological development

##### 4.2. Antidoping research

- extended steroid profiling aimed at long-term anabolic steroid abuse
- full doping detection and prevention program strictly conforming to the Antidoping Convention

##### 4.3. Biochemistry

- health condition of athletes as assessed from resting values of studied parameters
- biochemical responses to laboratory exercise
- training monitoring by measuring enzymes activity in serum
- post-exercise recovery in athletic training

##### 4.4. Biomechanics

- analysis of static and dynamic characteristics of human motor apparatus
- biomechanic analysis of sport injuries

##### 4.5. Endocrinology

- endocrinology of physical exercise and stress
- hormonal responses to laboratory exercise, training and competition

##### 4.6. Engineering

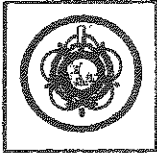
- designing and constructing diagnostic and training devices (bioengineering)

##### 4.7. Nutrition Physiology

- effects of supplementing athletes with vitamins and minerals
- effects of meal frequency on metabolic indices, physical fitness and motor coordination

##### 4.8. Physiology

- physiology of sport and exercise
- physiological adaptation to training loads



#### 4.9. Psychology

- psychological barriers to sport achievements and intervention strategies

#### 4.10. Sports medicine

- assessment of health, efficiency and psychophysical fitness of military sportsmen, considering the sports preferences
- prevention of sport injuries

#### 4.11. CISM Sports medicine activities

- studies and research in the military training and sport competitions
- the fight against the use of drugs in sports
- medical assistance

### 5. The Military section of Polish Scientific Physical Education Association

#### The main topics

- to disseminate and initiate the latest practical and theoretical results of : health, physical and military training, sports medicine, recreation and physical fitness in military and civil circles,
- to organize conferences and clinics,
- to publicate periodically papers.

We are open to international co-operation in these problems. In our symposium we would like to continue international collaboration in complex and interdisciplinary research on sports medicine in all armies which are members of CISM.

There is a very good idea that Warsaw work together with two CISM Permanent Commissions : the Permanent Commissions for Sport and Sports Medicine.

I would like to remember you the principle goals of our clinic. There are :

I hope that very known principal slogan of CISM Friendship through Sport we can spread to new slogan:

As director of scientific aspects and host of this conference I wish for all participants good staying in Warsaw and fruitful discussion.

Thank you so much for your attention.



## 6. Physical Fitness, Sport and Health in the Armed Forces

### The sub-topics

- assessment of actual health status and physical fitness of soldiers and military top-athletes;
- monitoring and optimalization of the exercises load control;
- overloading and overtraining problems;
- illnesses and injuries related to physical and sports activities;
- post exercise recovery problems.