

ORTHOMIS

# Training course on ergonomics for Minimally Invasive Surgery

E-LEARNING

## TRAINING COURSE

MESSAGE

**Project acronym:**

TRAIN4ORTHOMIS

**Project full title:**

Online Vocational Training course  
on ergonomics for orthopaedic  
Minimally Invasive Surgery

**Project Reference:**

2014-1-ES01-KA202-004533

**Duration:**

01-09-2014 – 31-08-2017

**Coordinator:**

Instituto de Biomecánica  
de Valencia

## NEWSLETTER Issue 01/2015

For these reasons, MIS surgery has offered a step change in quality of care, patient satisfaction and efficiency in use of health service resources.

Apart from advantages for patients' treatment mentioned above, there are also disadvantages including risks for surgeons' health. Stressing environmental factors are present in the surgical workplace and, additionally, surgeons have to perform high-force as well as high-precision tasks in combination with multimodal information processing. This leads to increased stress and strain, causing muscle overload, fatigue of surgeons and higher risk for human error and for inefficiencies in operations. Surgeons suffer from severe musculoskeletal disorders with progressing working life.

Due to increasing demand in hospitals of surgeons for minimally invasive surgeries, there is an urgent need to find solution for the problems mentioned above. A solution must be sought taking into account the following aspects:

- implementation of ergonomic criteria in the design of working tools and of suitable operating room environments; is essential to improve efficiency, safety, and comfort for the operating team, while reducing physical strains on surgeons,
- availability of proper training on ergonomic improvements in the surgical instruments and on user-driven methodologies for usability enhancement; it will synergistically expand the application of MIS surgery, with the associated benefits for patients and for surgeons.

**THE GOALS.** Train4OrthoMIS project will cover the mentioned lack of training of MIS surgeons, will improve the knowledge/capacities of the European professionals and will provide new skills for emergent activities that these of workers should carry out in their work.

## EDITORIAL

Welcome to the first TRAIN4ORTHOMIS newsletter, which will provide you with an overview of the initial project phases and the current activities.

The main objective of this project is development and implementation of an online course regarding orthopaedic Minimally Invasive Surgery of hip and spine. The e-learning tool resulting from the project will be available online in 4 European languages (English, Spanish, Polish and German) in order to increase interest to use the course.

**THE BACKGROUND.** The importance of minimally invasive surgery (MIS) has constantly increased, and it has been routinely used in orthopaedic surgery for more than 40 years, because of its main advantages: reduced trauma to soft tissues; decreased blood loss, less pain and faster recovery; better stability of the prostheses' components as well as better cosmetic results. In recent years there has been a progressive increase in the number of services and professionals worldwide who use MIS techniques.



Erasmus+

This project is Funded by European Commission ERASMUS+  
Call 2014 KA2 – Cooperation and Innovation for Good Practices

Train4OrthoMIS project aims to create, implement and set the basis for a pan-European exploitation of a new online VET course focused on ergonomic criteria in the design of working tools and of suitable operating room environments for MIS surgeons and assistants. In addition, this course is also intended for medical students interested in acquiring ergonomic and usability skills associated with MIS techniques as a formative process.

In conclusion, the following specific objectives set by the Erasmus+ Programme are intended to be achieved:

- To foster the provision and the assessment of key-competences related with ergonomics and usability, applied to orthopaedic Minimally Invasive Surgery of hip and spine.
- To enhance the quality and the relevance of the learning offer and to improve the level of key competences and skills by means of a new and innovative approach that will let to orthopaedic surgeons and assistants to acquire ergonomic knowledge.



## MEETINGS

Valencia, 19th January

Instituto de Biomecánica hosted on 19th January 2015 the Train4OrthoMIS project meeting, initiative funded by European Commission ERASMUS+ Call 2014 KA2 – Cooperation and Innovation for Good Practices.



El Instituto de Biomecánica (IBV) coordinates this initiative. The consortium is also formed by Institut für

Biomechanik (BGU-MURNAU); Centro de Cirugía de Mínima Invasión (CCMIJU); Institute of Mining Technology (KOMAG) and Silesian University of Technology (SUT).

As it was kick-off meeting, it covered presentation and discussion of main issues regarding the project. Work packages and tasks as well as main management and financial issues were presented and discussed. The meeting gave also participants opportunity to get acquainted with each other.

## NEWS

TRAIN4OrthoMIS consortium, since the project started, has focused its activities on identifying of training needs in ergonomics in the field of minimally invasive hip and spine orthopaedic surgery.

Surveys were conducted with surgeons who conduct this kind of operations.

Survey action covered a group of surgeons whose opinions are a reliable source of information necessary for development of useful and interesting training materials.

Access to the survey questionnaires was convenient for the respondents because they were developed in environment dedicated for online survey actions.

## PROJECT CONSORTIUM



INSTITUTO DE  
BIOMECAÁNICA  
DE VALENCIA

Instituto de Biomecánica de Valencia

[www.ibv.org](http://www.ibv.org)

IBV is a Technological Centre whose aim is the promotion and practice of scientific research, technological development, technical assessment and training in Biomechanics. Engineers, medical doctors, physical therapists, biologists, informatics, and experts in training, design and social work compose its interdisciplinary staff, with large experience in European, national and regional projects. The Healthcare Technology Group collaborates with surgeons, implants



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companies and other entities interested in health management, trauma care and development of health products. IBV has an Education and Training department, whose activity is focused on development and teaching of different courses regarding the areas of interest of the Institute, and a department of ICT, especially dedicated to the valorization of the activities of the Centre and the dissemination of the project results.



**Minimally Invasive Surgery Centre Jesús Usón**  
<http://www.ccmijesususon.com>

The Jesús Usón Minimally Invasive Surgery Centre, CCMIJU, is a multidisciplinary institution dedicated to excellence in research and training in minimally invasive surgical. Thanks to the available facilities and equipment, it is possible to develop less invasive surgical treatments by applying combined techniques and multidisciplinary equipment for treatment approach, thus benefiting the patient and providing higher precision to the surgeon. Similarly, the Centre is committed to technological development and innovation in health care, and for its advancement it works closely with companies from all over the world. Besides, since the CCMIJU is free from medical assistance, it joins all its efforts and resources into research. In short, this activity will have an impact on higher clinical quality for human patients and on the scientific and technical development within medical/surgical areas.



**Instytut Techniki Gorniczej KOMAG**  
[www.komag.eu](http://www.komag.eu)

KOMAG is a state-owned research and development organization, subordinated to and supervised by the Ministry of Economy, employing 125 scientific research and technical specialists (total 225 employees), offering new, competitive technical solutions in the branch of mechanical systems. An interdisciplinary knowledge of KOMAG specialists, their high scientific, research and technical qualifications create a significant potential, enabling to develop the best advanced technologies.



**Silesian University of Technology. Faculty of Organization and Management**  
[www.polsl.pl](http://www.polsl.pl)

The Faculty of Organization and Management is an entity of the Silesian University of Technology (1935 employed researchers), one of the largest higher education institutions in Poland having long scientific and didactic traditions. It is one of the leading scientific entities located in the region of Upper Silesia. Silesia – home for industry has a significant meaning for the economic and social development of the country. It is also the second most populated region in Poland. The end of the industrial era caused the change in the direction of the development of Upper Silesia to knowledge based economy, particularly the pro-innovative activities. Their activities are focused on enhancing work conditions and ergonomics in health care.



**Institute of Biomechanics, Trauma Center Murnau and Paracelsus Private Medical University Salzburg**  
<http://www.bgu-murnau.de>

The Institute of Biomechanics Murnau is a research institute for orthopaedic disorders. Key activities are biomechanical research, product development, clinical research, training and education, and gait analysis. The research institute is associated to the Trauma Center Murnau, which is known for their expertise in trauma surgery. The research institute is composed of approximately 12 employees, including six research assistants and two orthopedic surgeons. The facility is approximately 500 square meters and includes equipment for static mechanical testing (Zwick), dynamic mechanical testing (Instron), a full machine shop, a preparation room for biological samples, a micro CT scanner (Scanco) and finite element analysis software (Ansys). The primary research focus is mechanical testing and numerical evaluation of the interaction between implants and biological tissues in order to improve osteosynthesis techniques. The institute furthermore supports industrial partners with the clinical evaluation of medical products, including the planning, preparation and conduct of clinical studies. In the past the institute successfully completed Leonardo programs (Orthotraining, Osteoform) for lifelong learning and adult education.



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