



Basic information

The project entitled "Smart learning for gait physiotherapy - a standardized tool for health higher education in Europe" (acronym: SMARTtherapy +), No. 2020-1-PL01-KA203-082292, obtained funding after applying to the Erasmus+ Call 2020 Key Action 2, Strategic Partnerships in the field of Higher Education- strategic partnerships for innovation. The application received the highest scores, and was ranked first among all applications approved for funding.

The project is coordinated by the Silesian University of Technology. The group of project partners includes Fondazione Politecnico di Milano (Italy), Universitat zu Lubeck (Germany), and the Jerzy Kukuczka Academy of Physical Education in Katowice (Poland). The project will be implemented in 27 months, from 01/11/2020 to 31/01/2023, and the granted amount funded by the Erasmus+ Programme of the European Union is EUR 253,260.

Project abstract

The project aims to meet the growing needs in the field of gait physiotherapy, which result from the occurrence of three major factors:

- 1) Unhealthy, including sedentary, lifestyles and the so-called Kinesiophobia, that is the fear of pain due to movement in the case of painful conditions.
- 2) Ageing society. Age is a factor that increases the risk of gait dysfunction as slower gait or increased gait variability. These changes and the loss of coordination additionally exacerbated by visual disturbances, increase the risk of falls, which may consequently lead to serious injuries in elderly people.
- 3) A large number and variety of diseases that cause abnormal gait both in children and in adults, requiring intensive gait rehabilitation performed by skilled therapists.

In children, many developmental disorders affect walking function and require disease-specific therapy programs, such as tiptoe, asymmetric gait, wide-base gait; childhood neuromuscular diseases, such as cerebral palsy, progressive muscular dystrophy DMP; childhood orthopedic and neurological diseases, such as damage to peripheral nerves, craniocerebral injuries, foot and lower limb deformities. In turn, in adults, gait rehabilitation is crucial in diseases such as stroke, diseases of the extrapyramidal system, demyelinating diseases, spinal injuries, labyrinth diseases, orthopedic diseases, such as arthritis, inflammatory diseases of the joints; and other diseases such as limb arteriosclerosis and diabetic foot.

The mentioned causes of increasing need of gait-focused physical therapy are common throughout the European Union. At the same time, EU countries lack European standards





of professionalization of the physiotherapist professionals, necessary to ensure everywhere the same levels of safety and high-quality therapy, and there are neither harmonized guidelines nor standards in this regard. Moreover, there are no publicly available and standardized teaching materials on gait physiotherapy.

The project "Smart learning for gait physiotherapy - a standardized tool for health higher education in Europe" is aimed at satisfying the mentioned needs by developing professional and standardized training resources in the field of gait rehabilitation. The main advantage of this approach will be a new learning tool based on multidimensional and interactive scenarios of different gait therapy programs developed according to a purposely created database of case studies. It is planned to include 20 different gait alterations associated to disorders in the field of neurology, orthopedics, developmental diseases, and geriatrics.

Within the framework of SMARTtherapy + project, an innovative educational tool addressed to physical therapists, about the recovery of gait function, will be developed using modern digital solutions. The tool will be intuitive to use, and the training content will be easy to understand thanks to the use of advanced information and communication technologies (ICT) (training materials will be based on digital educational games and virtual reality environments). Moreover, the tool will be accessible and easy to spread to all interested targets, thanks to the distance learning support mechanism. In particular, as a learning tool, SMARTtherapy + will be a digital and modern learning platform about physiotherapy and walking rehabilitation, comprising three basic components: **USEFUL KNOWLEDGE**: basic scope of practical knowledge necessary to provide up-to-date and necessary skills to future rehabilitators and physiotherapists; **AVAILABLE KNOWLEDGE**: creating a sustainable educational tool that will guarantee equal access to knowledge throughout Europe; **NON-EXCLUSIVE KNOWLEDGE**: creating an effective educational tool that will guarantee the achievement of learning outcomes to students with different educational background or specialization, by adapting the learning methodology according to diversified individual learning capacities.

The acronym and the logo of the project, "SMARTtherapy +", and specifically the concept of "smart" is reflected by the unique features of the training tool, which are:

- The combination of the latest practical knowledge embedded in real case studies of physiotherapy protocols with an intuitive way of its presentation and absorption based on three pillars: knowledge should be useful, accessible, and non-exclusive.





- Effective and intuitive learning based on modern and intelligent ICT and virtual reality (VR) information and communication tools. Such a combination of modern technologies enables the creation of interactive boards and educational games simulating various physiotherapeutic protocols in a digital environment.

The target of the project are academic lecturers teaching courses in the field of physiotherapy, undergraduate and graduate students of physiotherapy, and doctors interested in gait rehabilitation. Among the target Institutions, medical schools and physical therapy education universities, offering different degree levels, masters and specialties in the field of physiotherapy. Ultimately, the beneficiaries of the project will be the patients affected by gait disorders, regardless of the cause of the pathology, who will have more chances for high-quality therapy programs tailored to individual needs, and performed by well-trained, highly-skilled physiotherapists.

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