

RESEARCH AND REPORTING HIGHLIGHTED NEEDS IN MEDICAL EDUCATION

Bulgarian National Report

Project title	Collaborative learning for enhancing practical skills for patient-focused interventions in gait rehabilitation after orthopedic surgery
Project acronym	<i>COR-skills</i>
Title of the document	Bulgarian National Report - highlighted needs in medical VET for orthopedic and rehabilitation professionals
Elaborated by	University Multi-profile Hospital for Active Care “Sainte Anna” - Sofia
Output 1	<i>Reports and research studies</i>
Dissemination level	PU
Date of the document Version 1	20.05.2016
Date of the document Version 2	10.06.2016
Date of the document Version 3	31.07.2016

*Project financed by European Commission under the Erasmus + programme, KA2.
This document reflects only the authors' view and the NA and the Commission are not responsible for any use that may be made of the information it contains.*



ABSTRACT

This report aims to develop common references for vocational and educational training (VET) in the field of gait rehabilitation: Medical doctors – specialists in Orthopedics and traumatology (OT) and in Physical & Rehabilitation Medicine (PRM), and specialists in Physiotherapy (Kinesitherapy – KT), Medical Rehabilitation & Ergotherapy (MRET), Medical Rehabilitation & Balneology (MRB), and Rehabilitation.

The Document introduces a brief picture of learning needs in the target groups of concerned staff (a total of 83 workers) and e-learning training approaches, by a national research, study and analyses on labour market demands, based on surveys and questionnaires addressed to the target group and potential users.

The second part of the document presents investigation results of opinion of a total of 61 students from the Medical universities of Sofia and Pleven, Bulgaria: in Medicine, in Physiotherapy, and in Medical Rehabilitation & Balneotherapy. All students present interest to an e-learning platform. About 99 % of students consider gait rehabilitation like an important item for recovery of autonomy of patients in every-day life.



Summary

TABLE OF CONTENTS		
Nº		Page
1.	INTRODUCTION	4
2.	PURPOSE OF THE REPORT	4
3.	TARGET GROUP	6
4.	EVALUATION METHODOLOGY	12
5.	EVALUATION RESULTS	13
5.1.	<i>For OT professionals</i>	13
5.2.	<i>For PRM professionals</i>	19
5.3.	<i>For managers</i>	23
6.	INVESTIGATION OF STUDENTS OPINION	26
7.	DISCUSSION	34
8.	CONCLUSIONS	39
9.	BIBLIOGRAPHY	41
10.	ANNEXES	42
10.1.	ANNEX1. NEEDS ASSESSMENT QUESTIONNAIRE IN ORTHOPEDICS	42
10.2.	ANNEX2. NEEDS ASSESSMENT QUESTIONNAIRE IN REHABILITATION	46
10.3.	ANNEX3. NEEDS ASSESSMENT QUESTIONNAIRE ADDRESSED TO MANAGERS	50



1. INTRODUCTION

According documents of the European Center for Development of professional education and training [2] **the electronic learning (e-learning)** is “education and training, mediated by information and communication technologies, including different formats and hybrid methodologies, like programming systems, Internet, CD-ROM, education by PC in regime of real time, and other electronic or interactive devices.” E-learning is “an application of modern multi-media technologies and Internet, with the objective of amelioration of the quality of education” [2,3,4].

From last year we are participants in an *Erasmus Plus* project, treating the problems of gait rehabilitation after orthopedic surgery. One of our obligations during this project was the evaluation of necessity of introduction of e-learning on gait rehabilitation between groups of potential beneficiaries: medical doctors – specialists in *Orthopedics & Traumatology (OT)* and in *Physical & Rehabilitation Medicine (PRM)*, physiotherapists, etc. The team of the project developed questionnaires, destined to mentioned target groups [8,9]. Due to the interest of our students, demonstrated during our lectures to this problem, we decided to effectuate the same investigation in three groups of our students.

2. PURPOSE OF THE REPORT

Increasing the quality of vocational skills requires the development of world-class VET systems. Increasing transversal and basic skills alone will not be sufficient to generate growth and competitiveness, and there is still too much distance between the educational environment and the workplace. VET must be able to react to the demand for advanced vocational skills, tailored to the regional economic context. It also needs to be an open door for those who want to access higher education, as well as individuals who need to update skills

The need for harmonisation development of an unitary system in medical education across Europe with common standard procedures is a well known fact. All EU medical

graduates should have equal chances to practice all over EU. Our project focuses on the project partners' identification of common needs that EU educational and training systems are facing and that can be met only by a common effort.

The present report represents a national research on labour market demands for Bulgaria, aiming to reflect needs' identification for our target groups on the use of the orthopedic and rehabilitation procedures at work place, based on surveys and questionnaires.

In order to attain this goal, analysis of learners' actual knowledge and of knowledge needs for identifying the current performances and gaps was carried on, as well as analysis of the VET in orthopedics and rehabilitation, correlated with the use of orthopedic and rehabilitation procedures in practice. The last part of the report tries to identify the ways for introducing orthopedic surgical procedures and rehabilitation protocols after surgery into the work environment.

The aim of this report has a special value as needs analysis is essential for the development of the COR-skills project; the project is designed to provide solutions to clearly identified needs of the target groups and this is the reason we have dedicated a report for needs assesment. Even if the project includes an ex-ante analysis of the needs on EU context, this was based on EU literature, reports and researchers for medical education in general and previous needs assesment in ORTHO e-man. Needs assesment of the target group will now foccus on specific issues (orthopedics, rehabilitation, gait assessment) and must be carried on in order to integrate further outcomes of COR-skills project into national and/or sectoral training systems.

In this way the present research aims to:

1. Analyze the vocational training needs in orthopaedics and rehabilitation and state of art of medical e-learning in Bulgaria;
2. Define the needs of the target groups
3. Identify the current interest level to e-learning of the target groups;



4. Describe the reference levels, certification principles and VET methods and programmes in the field of medical specialties Orthopedics & Traumatology (OT), and Physical and Rehabilitation Medicine (PRM); and Physiotherapy (Rehabilitation & Kinesitherapy) in Bulgaria.

Identification of initial requirements must be followed by their validation against the project objectives, identification of best solutions how this will be achieved and identification of best resources and tools in order to create an interdisciplinary on-line collaborative platform with specific learning tools and content, supporting participants in acquisition of skills in the field of orthopedics and rehabilitation directly linked to their needs, expectatives and labour market requirements.

3. TARGET GROUP

3.1. *Forseen target groups and indicators*

According to project work plan and indicators, Bulgarian **direct target group** (primary target group) includes organizations and individuals that will be direct users of the project results. For Bulgaria *we foresee about 50 trainees for both training modules represented by: medical doctors in OT and PRM, and physiotherapists.* The medical professionals can be on different levels of training and different working places (specialists, residents).

In terms of organisations the target includes:

- Vocational training organizations and other training providers
- Universities, colleges and other providers of medical education
- Public and private health institutions
- Professional associations (ENT-PROFS)

3.2. *Indirect Target Group*

The **indirect Target Group** (secondary target group) includes individuals and organizations related to the direct target group of the project, as follows:



- ❖ Staff in the medical educational system in participant countries, including individuals with local responsibility for educational programs at all levels of the continuum — for example, deans and their staff, department chairs, and responsables for resident training programmes in orthopedics and rehabilitation from organizations with whom project partners are networking.
- ❖ Institutional officials at clinical orthopedics and rehabilitation departments, as directly interested in CME of their employees
- ❖ Accreditors, certifying and licensing bodies. Organizations that accredit educational programs/providers at continuing level of medical education
- ❖ Medical education and related associations in the field of orthopedics and rehabilitation; national organizations

This group will function as key stakeholders and will be involved in dissemination activities, evaluation of outcomes, in reaching the target group. Reaching this group will be done by the networks of each partner organisation. *For Bulgaria we estimate:*

- *Min 5 institutional officials/managers*
- *Min 6 professionals in the medical educational system*
- *Min 5 members of professional organisations and accreditors*

3.3 Long-term Beneficiaries

Long-term beneficiaries are certain interest groups that will benefit from the project outcomes on a long term basis like medical doctors that will benefit of the training program after the project ends, due to inclusion of courses into CME. The dissemination plan indicates scanning activities to identify broader target groups with a potential interest in the results, so they will be targeted by our dissemination as potential trainees after the end of the project.

3.4 Target group respondents

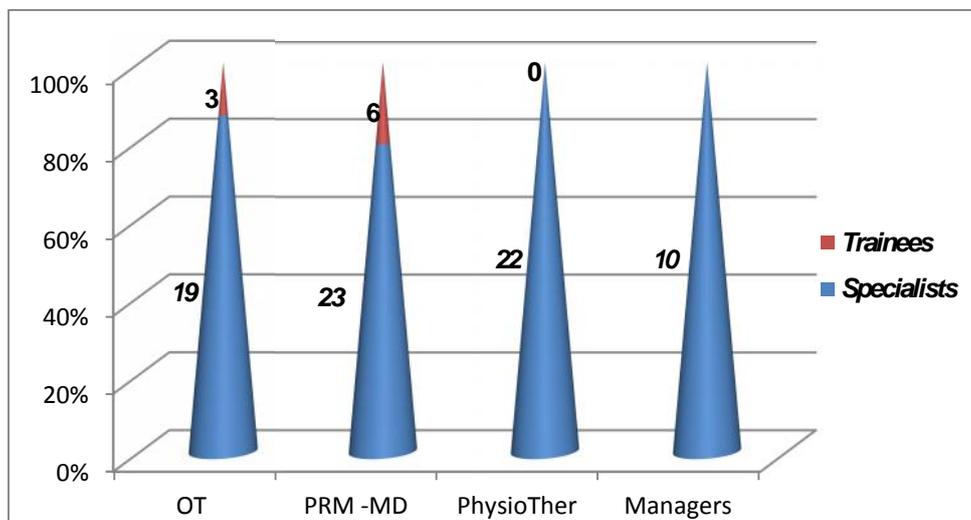
The short description of the respondents' classes, number of respondents, and other details about each category mentioned above follows.



The structure of the respondent group on category and country was as follows:

We applied questionnaires on different target groups, but we received complete questionnaires form a total of 83 respondents. Table 1 & Fig.1:

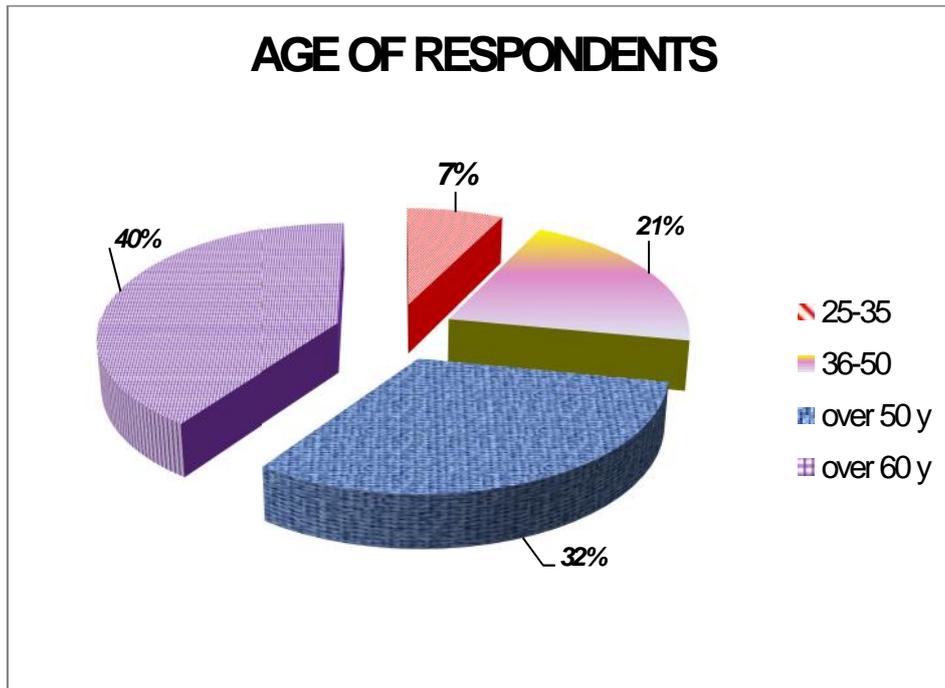
Country	Total	OT specialists	OT residents	PRM specialists	PRM trainees	Phy-ther Kine_ther ¹	Managers
Bulgaria	83	19	3	23	6	22	10



Regarding the age of respondents –Tabl.2 & Fig.2:

Country	Age 20-35	36-50	Over 50	Over 60	TOTAL
BG	6	17	26	33	83

¹ Phy-ther is used for physical therapists



- **The Orthopedics and Thraumatology /OT/ category** –The total number of the survey respondents in this category is 22. All the respondents are representatives of the OT Departments of the University hospitals of Sofia, Bulgaria. All specialists and residents in OTwho took part in the COR project survey are members of the Bulgarian Medical Union. The survey respondents from this target group are representatives of the following two classes (see Fig. 1):
 - **Specialists - Medical doctors specialized in Orthopedics and Thraumatology /OT/** - 19 medical doctors;
 - **Residents in OT** – 3 residents.

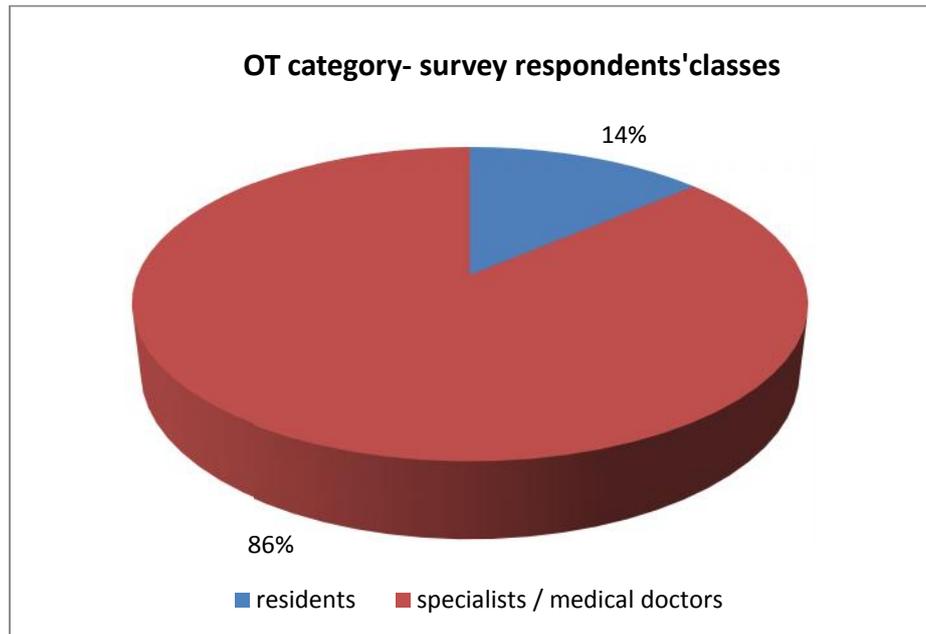


Figure 3. Orthopedics and Thraumatology category - COR survey respondents

- **The Physical & Rehabilitation Medicine /PRM/ & Rehabilitation category -**
The total number of the survey respondents from this category is 51. All the respondents are medical doctors – specialists in Physical and Rehabilitation Medicine (PRM) or PRM-residents; and physiotherapists (kinesitherapists and rehabilitators) of the Departments of Physical & Rehabilitation Medicine at the University Hospitals of Sofia and Pleven, and participants in CME courses of 2016 from all the country. 29 of the people involved in this survey are members of the Bulgarian Medical Union. The rest 22 respondents are members of the Bulgarian Association of Physiotherapists. The survey respondents from this target group are representatives of the following three classes (see Fig.2):
 - *Specialists - Medical doctors specialized in PRM–23 medical doctors;*
 - *Residents in PRM–6 residents;*
 - *Physiotherapists –22 physiotherapists.*

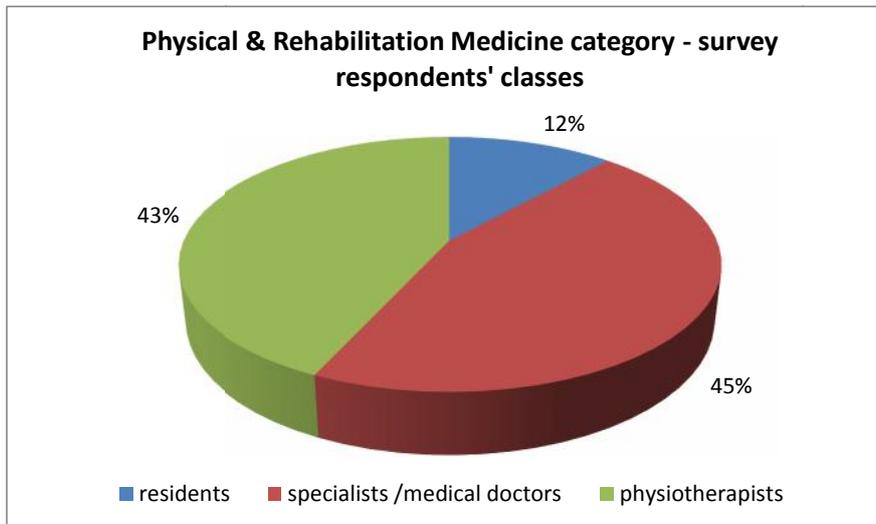


Figure 4. Physical & Rehabilitation Medicine category - COR survey respondents

- The Managers, medical educational policy makers and academic medical staff – The total number of the survey respondents is 10 where. All the respondents are representatives of University hospitals of Sofia and Pleven. The respondents' classes are as follows:

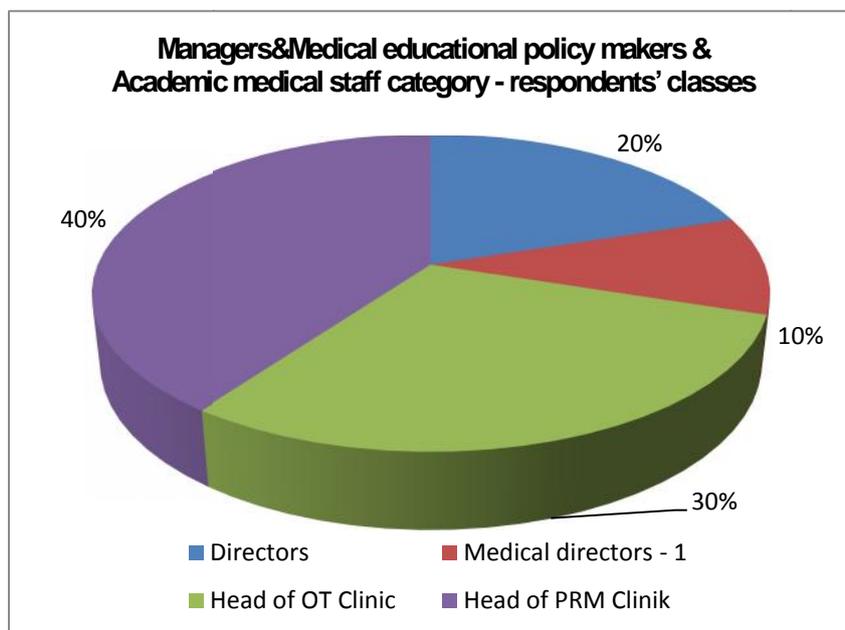


Figure 5. Managers, medical educational policy makers and academic medical staff category – COR survey Respondents



4. EVALUATION METHODOLOGY

Bulgarian National Report has been conducted by disseminating needs assessment questionnaires in scientific meetings and analyzing the results. Documentary research was done for regulations of specialty education.

4.1. *Field Work*

The COR project survey was conducted on the base of the questionnaires (provided in Annex I, II, and III of this document) developed by the project team taking into account the three main categories: Orthopedics and Thraumatology domain professionals; Physical & Rehabilitation Medicine professionals, and Managers&Medical educational policy makers &Academic medical stuff - staff in the medical educational system in participant countries, including individuals with local responsibility for educational programs at all levels of the continuum. The three types of questionnaires were developed in English and then translated on the national languages of the respondents. The aim of these questionnaires was to evaluate the perceived level of IT ability and accessibility, the experiences and attitudes of the target groups towards e-learning and clinical skills training.

The printed versions of the translated questionnaires were disseminated among the professionals representing the main three survey categories, taking into consideration the structure of each target group.

Questionnaires were distributed via various means: by direct contact (during meetings, courses, team building, etc).

The respondents were contacted from February 15th to May 15th. Afterwards, responses provided have been collected, processed and summarized.

4.2. *Documentary Research*

An online documentary research was done through the legal regulations pages about postgraduate specialty education in Bulgaria.



5. EVALUATION RESULTS

5.1. For Orthopedics and Traumatology Professionals

Total number of respondents: 22

Question 1. Refers to the frequency of accessing the internet and 18% stated that they access the internet daily. 64% of the respondents declare that they usually access the internet 2-3 times a week, and the rest 18% - access the internet once a week. Taking into account these results, we can conclude that for the majority of the respondents internet usage is becoming a regular activity, which outlines really promising prospects for the COR project aims and objectives achievement.

Question 2. This question is about the use of the internet for improving the professional career. The responses received are classified into 3 frequency categories and the collected data are as follows.

Table 3:

Daily	5%
Weekly	23%
Montly	72%

Question 3. The question is focused on the familiarity and the confidence of the respondents in usage of some of the most popular e-tools and services. The answers are presented in the table below.

Table 4:

	Never heard of it	I have heard but never used it	I can manage with help	I can use it
Chat	9%	36%	5%	50%
Wiki	0%	9%	5%	86%
Audio conferencing	0%	68%	0%	32%
Video conferencing	0%	77%	0%	23%
Forum	0%	59%	0%	41%
E-mail groups	0%	0%	0%	100%
Internet Mobile / mobile learning	0%	82%	0%	14%

E-mail groups, Wiki and Chat applications are used by most of the respondents. The internet mobile / mobile learning platforms as well as audio and video conferencing facilities are not so popular.

Question 4. Refers to the main categories of information that the medical professionals require and how often they use them.

The answers showed that all the respondents are interested to receive weekly (18%) and monthly (82%) information and knowledge about clinical issues, which is a theme of great importance for the project. 68% of the participants want to receive monthly news and publications, and 55% would like to receive monthly information about medication.

Table 5:

		<i>Daily</i>	<i>Weekly</i>	<i>Monthly</i>
Clinical issues	100%	0%	18%	82%
Medical Legislation	18%	0%	0%	18%
Medication	55%	0%	0%	55%
Medical events	27%	0%	0%	27%
News Publications	68%	0%	0%	68%
Science & Research	23%	0%	0%	23%

Question 5. Concerning the preferable styles and means to improve their professional career the majority of the respondents have selected classical courses (64%) and workshops (59%). The survey shows that the e-learning (methodologies and tools) is not so popular among the OT domain professionals who have participated in the survey and by this reason active promotion and fostering is needed.

Table 6:

<i>Classical courses</i>	64%
<i>Workshops</i>	59%
<i>e-learning</i>	32%

Question 6. This question evaluates the interest of respondents in e-learning. 64% of the respondents declare their interest but still big number (36%) of participants in this survey are not enough interested in e-learning. These results outline the need for the development of friendly, easy-to-use and in the same time highly motivating and attractive e-learning solutions and contents.

Question 7. Explores the interest of respondents in mobile learning. Only 23% were interested in mobile learning. This rate is very low perhaps because of the lack of native language sources.

Question 8. The question is in regard to the target group interest towards e-learning. An open sub-question aims to detect the most frequently used and searched domains.

Table 7:

<i>Yes</i>	9%
<i>No</i>	82%

The answers showed that currently only 9% of respondents have looked for e-learning courses in Internet. The traditional courses and workshops are still preferred formats in Bulgaria. As mostly used domains are specified the following: ***Hip endoprothesis; Sport trauma; Gerontologic trauma.***

Question 9. Explores the amount of time that the target group think are necessary to refresh their knowledge and improve skills and competencies.

The responses vary from minimum 10 hours to maximum 55 hours are necessary.

Questions 10-11. Evaluate the willingness of the respondents in using an e-learning platform for continuous education on payment basis. 64% of the respondents turn to free online platform, while 14% are ready to pay for such a service if it was worth.

Question 12. Regards the language for the course information. 82% of the respondents prefer native language and in the same time only 18% could use information in English.

Table 8:

<i>English or Bulgarian</i>	18%
<i>Bulgarian</i>	82%



Question 13. Aimed to identify the lower limb pathology that would interest mostly the target group. All respondents are interested in post-traumatic pathologies. The lower interest is demonstrated regarding **Congenital and Inflammatory**.

Table 9:

LOWER LIMB PATHOLOGY	Yes	No
Congenital	14%	86%
Post-traumatic	100%	0%
Inflammatory	27%	73%
Degenaritive	82%	18%
Tumoral	68%	77%

Question 14. The question aims at evaluation of the respondents' interest towards the application of gait analysis in orthopedic surgery. More than 73% declare high level of interes to this topic.

Question 15. This question asked the respondents to express their interest in methods that would be provided through an e-learning platform dedicated to lower limb orthopedic pathology (including complications).The colcted feedback is presented in the table below. As is visible the topics such as hip trauma and knee trauma are the most interesting topics for this target group.

Table 10:

LOWER LIMB DIAGNOSES	Yes	No
<i>Hip trauma</i>	100%	0%
<i>Hip osteoarthritis</i>	86%	14%
<i>Knee trauma</i>	100%	0%
<i>Knee osteoarthritis</i>	73%	27%
<i>Surgery for neuro-muscular disorders</i>	14%	86%
<i>Ankle osteoarthritis</i>	32%	68%
<i>Fractures of tibia and ankle</i>	77%	23%
<i>Ankle arthrodesis</i>	59%	41%
<i>Diabetic foot</i>	18%	82%
<i>Congenital and developmental disorders</i>	9%	91%
<i>Fractures of the calcaneum</i>	55%	45%
<i>Bone tumors</i>	41%	59%

Question 16. Asked about the most probable subjects that would interest the participants in e-learning. Most attractive subjects were again hip and knee surgeries.

Table 11:

	Yes	No
Diaphyseal fracture fixation	100%	0%
Articular and peri-articular fracture fixation	100%	0%
Hip Arthroplasty	100%	0%
Knee arthroplasty	100%	0%
Knee osteotomy	82%	18%
Hip osteotomy	59%	41%
Ankle arthrodesis	27%	73%
Tenotomies and capsulotomies	14%	86%
Ligamentous surgery	9%	91%

Question 17. Concerning the most useful aspects of the application of gait analysis in the orthopedic practice the biggest number of the respondents point “guiding post-op rehabilitation” (86%) and patient evaluation (68%). The complete description of all collected results is presented in the table below.

Table 12:

	Yes	No
<i>Patient evaluation</i>	68%	32%
<i>Pre-operative planning</i>	55%	45%
<i>Establish the timing of surgery</i>	36%	64%
<i>Guiding post-op rehabilitation</i>	86%	14%
<i>Predicting the onset of complications</i>	18%	82%

Question 18. This question aims at collecting data about success perception of the respondents concerning the orthopedic treatment. Good functional results and the absence of any complications are among the alternatives with the highest rates.

Table 13:

	Yes	No
Good functional result	73%	27%
No complications	100%	0%
Social and professional reintegration of the patient	36%	64%
Radiological healing, nomatter the functionla result	9%	91%



Question 19. Determined the demographics of interest distribution among the participants. As is visible form the table with the collected feedback, the professionals participated in this survey declare high level of interest in all provided alternatives /aspects.

Table 14:

	Yes	No
Indications for each procedure	82%	18%
Surgical approach	100%	0%
Necessary instruments	95%	5%
Bone preparation	73%	27%
Implant positioning	95%	5%
Tips and tricks	77%	23%
Possible failures and complications	82%	18%

Question 20 – 21 - 22. Evaluates the use of human gait analysis in practice. More than 70% of the respondents are familiar with gait analysis. 82% use human gait analysis in their practice by by clinical observation but no one has used computerized gait analysis. 86% are interested in this technique and want to learn more about application of gait analysis in rehabilitation.

Question 23 – 24. Explore the interest of the target group in sharing their knowledge by a Forum on medical topics and sharing experiences for second opinion. Nearly 60% of the respondents declare interest in using a forum on medical topics, but only 36% are interested in sharing experiences for second opinion on on-line basis.

5.2 For Physical & Rehabilitation Medicine (PRM) Professionals

Total number of respondents: 51

Question 1. Reffers to the frequency of accessing the internet and 25% stated that they access the internet daily. At about 50% of the respondents declare that they usually access the internet 2-3 times a week, and the rest 25% - access the internet once a week. Taking into account these results, we can conclude that for the majority of the respondents internet usage is becoming a regular activity, which outlines really promising prospects for the COR project aims and objectives achievement.

Question 2. This question is about the use of the internet for improving the professional career. The responcees received are classified into 3 frequency cathegories and the collected data are as follows.

Table 15:

Daily	2%
Weekly	27%
Montly	71%



Question 3. The question is focused on the familiarity and the confidence of the respondents in the use of some of most popular e-tools and services. The answers are presented in the table below.

Table 16:

	<i>Never heard of it</i>	<i>I have heard but never used it</i>	<i>I can manage with help</i>	<i>I can use it</i>
<i>Chat</i>	31%	43%	12%	31%
<i>Wiki</i>	0%	0%	0%	0%
<i>Audio conferencing</i>	27%	73%	0%	27%
<i>Video conferencing</i>	31%	69%	0%	31%
<i>Forum</i>	76%	24%	0%	76%
<i>E-mail groups</i>	0%	0%	4%	0%
<i>Internet Mobile/ mobile learning</i>	0%	8%	25%	0%

Question 4. Refers to the main categories of information that the medical professionals require and how often they use them.

The answers showed that all the respondents prefer to receive news and information on weekly or monthly basis.

There is registered interest to all proposed categories. The biggest interest is declared towards Medication (73% of the respondents) where 30% prefer to be informed weekly and the rest 43% - monthly.

As total 65% are interested to receive weekly (24%) and monthly (41%) information and knowledge about clinical issues, which is a theme of great importance for the project.

All the collected data are summarized and presented in the next table.

Table 17:

		<i>Daily</i>	<i>Weekly</i>	<i>Monthly</i>
Clinical issues	65%	0%	24%	41%
Medical Legislation	29%	0%	0%	29%
Medication	73%	0%	30%	43%
Medical events	33%	0%	0%	33%
News Publications	31%	0%	8%	24%
Science & Research	27%	0%	0%	27%

Question 5. Concerning the preferable styles and methodologies for improving the professional career the half of the respondents have selected classical courses (51%) and workshops (41%). The survey shows the results similar to these already obtained via

the survey among the target group of orthopedics and thraumatology professionals. Here also is visible that the e-learning (methodologies and tools) is not so popular among the RMT domain professionals, who have participated in the survey. Here the results are even lower – only 8% of the respondents prefer e-learning to the other methogologies. The necessity of urgent actions focused on the active promotion and fostering of the e-learning among this target group is really crucial.

Table 18:

<i>Classical courses</i>	51%
<i>Workshops</i>	41%
<i>e-learning</i>	8%

Question 6. This question evaluates the interest of respondents in e-learning. 51% of the respondents declare their interest but still big number (49%) of the participants in this survey are not enough interested in e-learning. These results outline the need for improvement the awareness, interest, and motivation of this target group through the development of well and professionally designed, friendly, easy understandable and in the same time very attractive e-learning solutions and contents.

Question 7 explores the interest of respondents in mobile learning. Only 33% were interested in mobile learning. This rate is very low perhaps because of the lack of native language sources.

Question 8. The question is in regard to the target group interest towards e-learning. An open sub-question aims to detect the most frequently used and searched domains.

Table 19:

<i>Yes</i>	27%
<i>No</i>	73%

The answers showed that currently less than one thirsd of the representatives of PRM target group participated in the survey have looked for e-learning courses in Internet. The traditional courses and workshops are still preferred formats in Bulgaria. As mostly used domains are specified the following: **Neurorehabilitation; OT Rehab; Cardiorehab; Oncologicrehab; Pain management.**

Question 9. Explores the amount of time that our target group think are necessary to refresh their knowledge and improve skills and competencies.

The responses vary from minimum 10 hours to maximum 55 hours are necessary.

Questions 10-11 evaluate the willingness of the respondents in using an e-learning platform for continuous education on payment basis. 69% of the respondents turn to free online platform, while 35% are ready to pay for such a service if it was worth.

Question 12. Regards the language for the course information. 69% of the respondents prefer native language and in the same time 31% could use information in English.

Table 20:

English or Bulgarian	31%
Bulgarian	69%

Question 13. Aimed to identify the pathologies, localized to the lower limb joints, which are most interesting for the respondents.

Table 21:

	Yes	No
<i>Congenital</i>	24%	76%
<i>Post-traumatic</i>	94%	6%
<i>Inflammatory</i>	86%	14%
<i>Degenaritive</i>	100%	0%
<i>Tumoral</i>	14%	86%

Question 14. This question asked the respondents to express their interest in topics (*methods*) that would be provided through an e-learning platform dedicated to the joints of the lower limb pathology, requiring surgery. The collected feedback is presented in the table below. As is visible the topics such as hip trauma and knee trauma are the most interesting topics for this target group.

Table 22:

	Yes	No
<i>Kinotherapy/ Hidro – Balneo-kinesitherapy</i>	94%	6%
<i>Massage</i>	31%	69%
<i>Electrotherapy</i>	57%	43%
<i>Magnetotherapy</i>	31%	69%
<i>Other preformed physical modalities</i>	27%	73%
<i>Techniques for orthosis/prosthesis</i>	55%	45%
<i>Occupational therapy</i>	35%	65%
<i>Balneology</i>	29%	71%
<i>All of the above</i>	75%	25%
<i>Kinotherapy/ Hidro – Balneo-kinesitherapy</i>	94%	6%
<i>Massage</i>	31%	69%
<i>Electrotherapy</i>	57%	43%

Question 15. Asked about the most probable subjects that would interest the participants in e-learning. As is visible from the collected and summarized data presented in the table below all topics are interesting for the audience.



Table 23:

	Yes	No
<i>Kinotherapy/ Hidrokinetotherpay</i>	53%	47%
<i>Massage</i>	29%	71%
<i>Electrotherapy</i>	37%	63%
<i>Techniques for orthosis/prosthesis</i>	35%	65%
<i>Occupational therapy</i>	43%	76%
<i>Balneology</i>	27%	73%
All of the above	57%	43%

Question 16 – 17 - 18. These questions refer the use of the human gait analysis in practice. More than 73% of the respondents are not familiar with gait analysis. 94% use human gait analysis in their practice by clinical observation but no one has used computerized gait analysis. 96% are interested in human gait analysis technique and want to learn more about its application in rehabilitation.

Question 19 – 20. Explore the interest of the target group in sharing their knowledge by a Forum on medical topics and sharing experiences for second opinion. 96% of the respondents declare interest in using a forum on medical topics, and more than a half of them (55%) are interested in sharing experiences for second opinion on on-line basis.

5.3. For Managers, medical educational policy makers and academic medical staff

Total number of respondents: 10

Question 1. This question refers to the respondents' opinion about the importance of the continuous medical education for them and their employees. All the respondents state that the continuous medical education is very important for them, their institutions and for their employees.

Question 2. The question aims at gathering information about how many hours and respectively ECTS credits do the employees need yearly for continuous medical education, according to Bulgarian health legislation.

In accordance with the Bulgarian health legislation the employees need yearly 40 – 60 hours per year and respectively 3-5 ECTS credits

Question 3 - 4. This question evaluates the interest of respondents in e-learning and mobile learning. 100% of the respondents declare their interest in both e-learning and m-learning domains.

Table 24:

<i>Yes</i>	100%
<i>No</i>	0%



These results reveal the promising prospects and existence of the understanding and support by side of the managers, medical educational policy makers and academic medical stuff to the development of the e-learning medical educational policy and inclusion of the professionals engaged in the medicine domain in the digital education.

Question 5. The question is in regard to the target group interest towards e-learning courses. An open sub-question aims to detect the most frequently used and searched domains. All of the respondents involved in this survey declare that they have looked for e-learning courses on internet.

Table 25:

<i>Yes</i>	100%
<i>No</i>	0%

As domains of biggest interest are specified the following: **Physical & Rehabilitation Medicine; Rehabilitation; Surgery; Neurology; Neurosurgery; Orthopedics and Thraumatology; Pain medicine.**

Question 6. This question refers to the familiarity of the employees of the respondents' institutions and organisations with the usage of e-learning platforms. 60% of the respondents declare that their employees are familiar with the e-platforms and their usage, bur the rest of the sample (quite big number - 40%) declare that their employees are not enough familiar with e-platforms. This impose the need of initiatives and activities for improvement the awareness, knowledge and skills of the of the medical stuff regarding the use of the e-platforms and their tools, functionality and instruments.

Question 7. Refers to the readiness of the respondents (if they have access to an e-learning medical platform) to promote it within their organisations.

100% of the respondents participating in this survey declare that they will promote the use of an e-learning medical platform among their colleagues and employees.

Question 8 - 9. Evaluate the willingness of the respondents in using an e-learning platform for continuous education on payment basis. 100% of the respondents turn to free online platform, while 40% are ready to pay (depending on the price) for such a service if it was worth.

Question 10. This question refers to the preferences of the respondents concerning the courses presentation language.70% of the respondents declare that they prefer the courses' contents to be presented in English and Bulgarian languages and the rest part of the sample would like the courses' contents to be in Bulgarian language.



6. INVESTIGATION OF STUDENTS OPINION

6.1. METHODS OF THE INVESTIGATION

In relationship with an assessment of the opinion of future potential users of the project „Erasmus Plus“ treating the „Gait rehabilitation“ the team of the project elaborated questionnaires, destined to medical doctors – specialists in Orthopedics & Traumatology (), medical doctors – specialists in Physical & Rehabilitation Medicine (PRM), and to the staff of correspondent Clinics and Departments OT & PRM [7,8]. The goal of the investigation was the evaluation of the necessity of development of the gait rehabilitation in the country, and to the readiness of the target groups to receive the possibility of access and to use with efficacy electronic education and practical training on this subject. We decided to amplify the investigation to potential future beneficiaries – students in Medicine (M) of the course V (before the practical last year of studies), students of the bachelor's degree in Kinesitherapy (KT) from the courses II & III (before the practical summer stage), and students of the Master's degree in „Medical Rehabilitation & Balneology“ (MRB) before the last practical part of studies.

We must underline that the discipline ‘Physical & Rehabilitation Medicine’ is during the fifth year of education in Medicine (and during the sixth year future medical doctors have only practical training). We must put emphasis on the facts, that all students of the master's programme in Medical Rehabilitation & Balneology have the degree of Professional Bachelor in Rehabilitation and most of them are working in PRM Departments or Clinics in different hospitals (stationary rehabilitation for inpatients) or in Medical centres (ambulatory rehabilitation for outpatients).

We adapted part of questions to the age and professional competence of students. Tests were translated in Bulgarian language for Bulgarian students, for students in Medicine – education in English the tests were presented in English language.

The investigation was effectuated during the period from May to June 2016 with *students in Medicine* of the Medical University of Pleven (*education in English*) and *students in KT & MRB* of the Medical University of Sofia. The target groups received questionnaires electronically (by e-mail) or directly (after the end of lectures and after the exam of the corresponding discipline).

For current study we applied different **methods**: Screening, Questionnaires, Analysis of documents, Statistics.

The final statistical evaluation of results we made with the **statistical package SPSS**, version 19: options two samples comparison with parametrical analysis of variances ANOVA and non-parametrical distribution and correlation analysis, as follows: *t-test* (t , p value), *Signed test*, *Signed rank test*, *Kolmogorov – Smirnov test*, *Mann – Whitney (Wilcoxon) W test* (W). For statistical significant effects we consider results with value of $p < 0.05$, but in some cases we obtained lower p values ($p < 0.01$).

6.2. MATERIAL (STUDENTS)

The questionnaire was proposed to the cited target groups. Here we refer only results of the students' opinions from full answered questionnaires (a total of 61 responders).

The distribution of students by specialties (absolute numbers and percents) is presented in Table 26 and Figure 6.



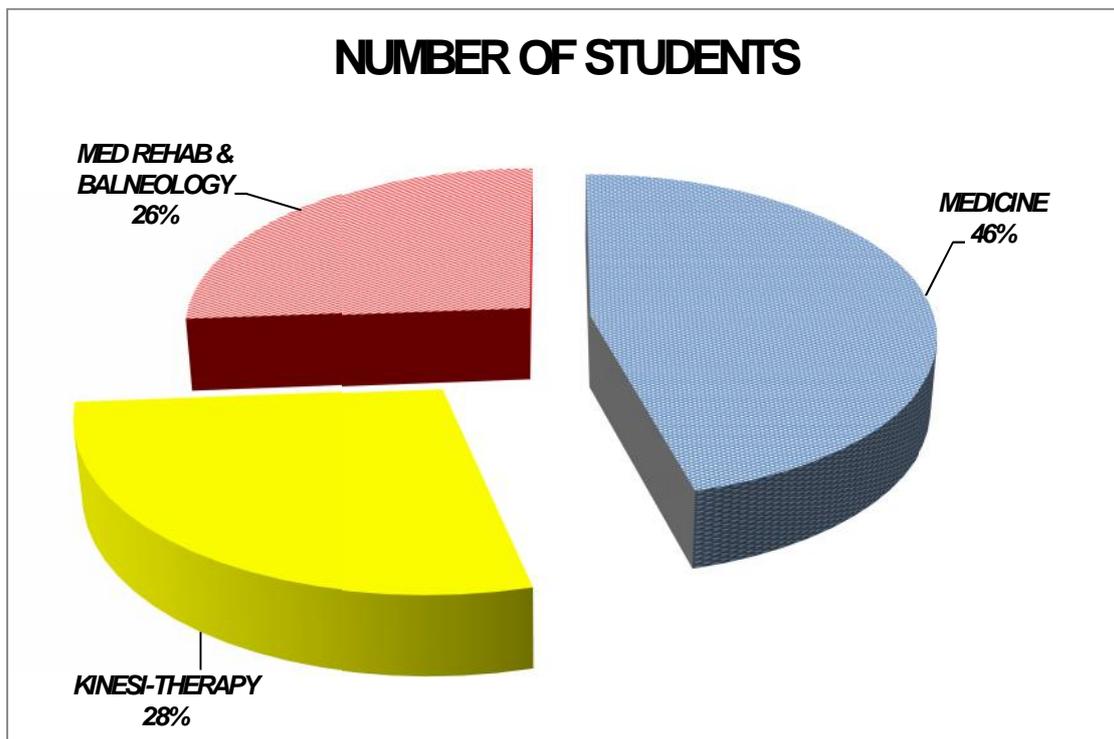
Table 26.

Distribution of respondents – students in different specialties (number).

TOTAL NUMBER OF STUDENTS	SPECIALTY OF EDUCATION		
	MEDICINE – English speaking students	KINESITHERAPY - Bachelor's degree	MEDICAL REHABILITATION & BALNEOLOGY – Master's degree
61	28	17	16

Figure 6.

Distribution of respondents – students in specialties (in percent).





Distribution of students by age and sex is presented in table 27 and figures 7 & 8.

Table 27.

Age of respondents (absolute value)

Country	Age 20-35	36-50	Over 51 y
BG	58	2	1

Figure 7.

Distribution of respondents by age groups (in percent)

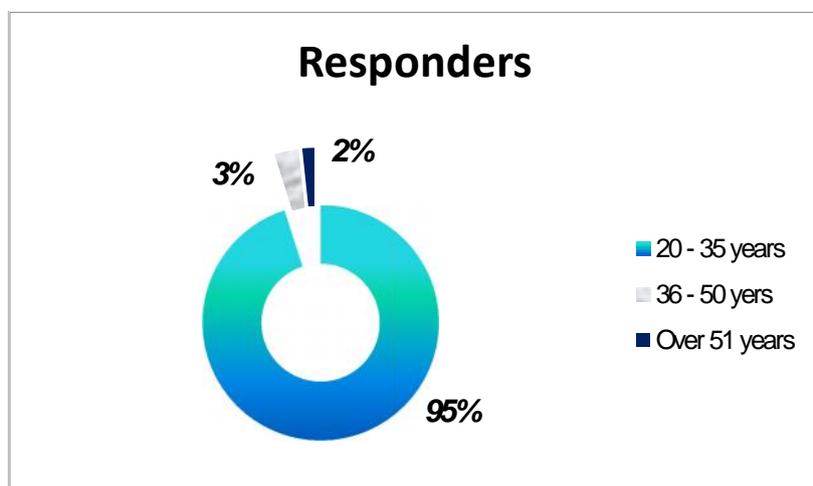
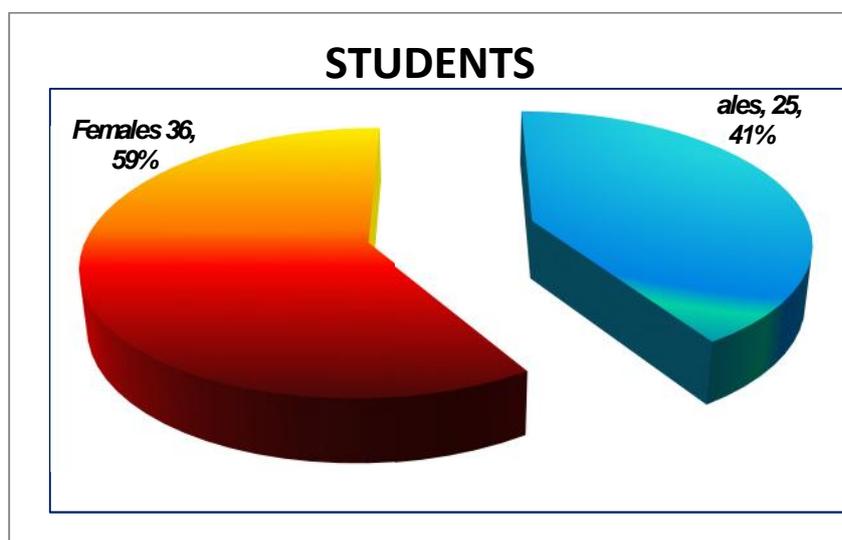


Figure 8.

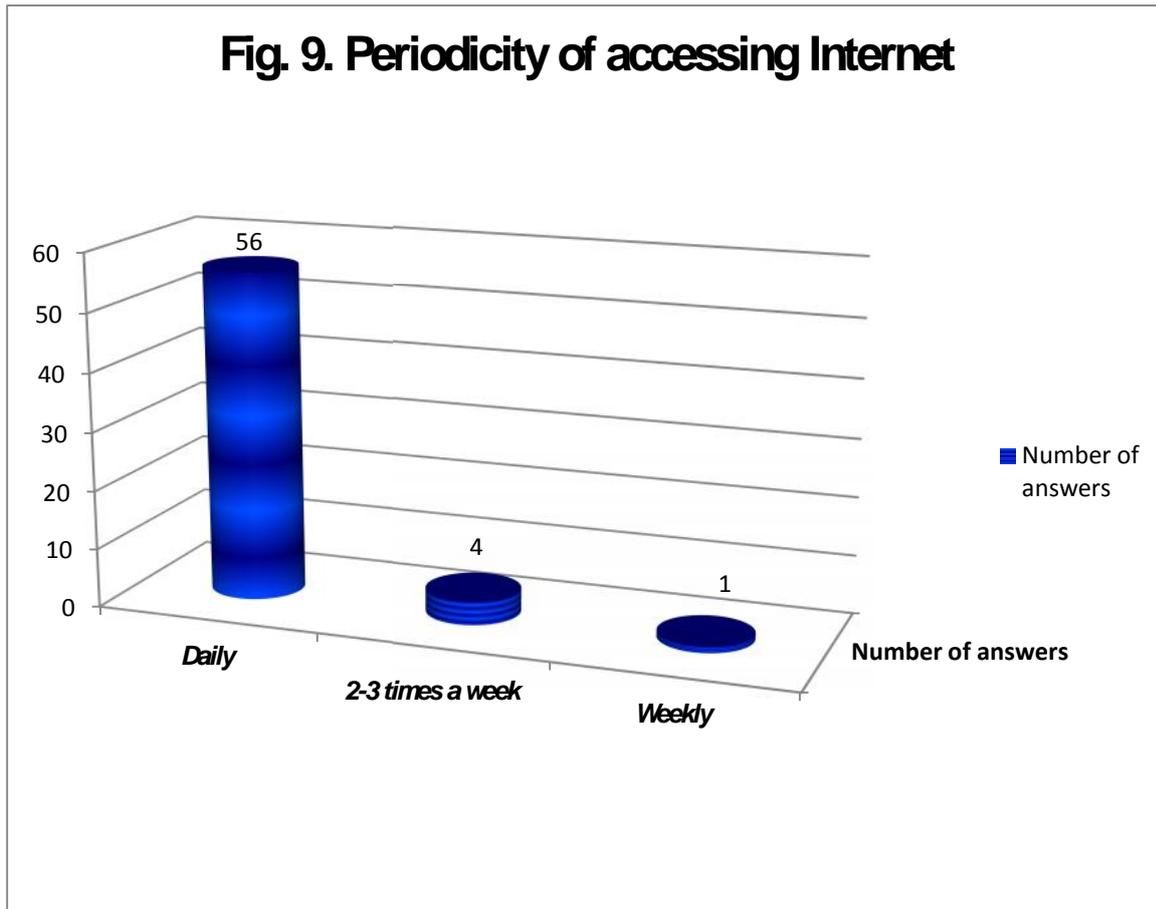
Distribution of respondents Males : Females (in absolute value and in percent)





6.3. RESULTS AND ANALYSIS

Most of students access the Internet sources of information every day. The detailed presentation of answers is on Figure 9:



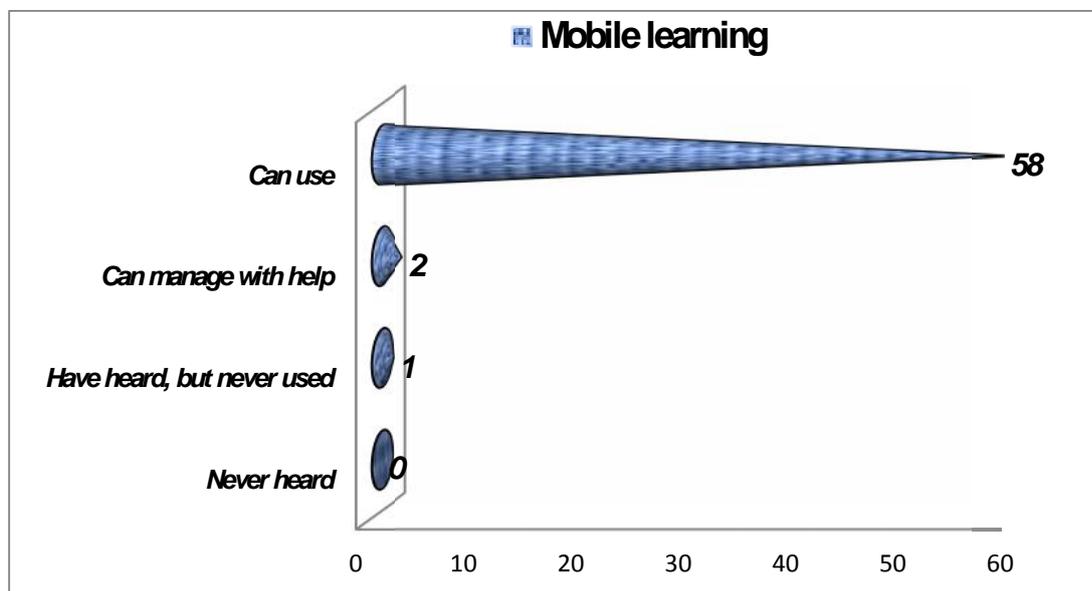
Answers of the question about the ‘Which of the following e-tools are you familiar with and to which extent?’ are presented on Table 28. Figure 10 refers to the familiarity of students with the usage of mobile learning and e-learning platforms:



Table 28.

Application of Internet for professional goals

	Never heard	Have heard but never used	Can manage with help	Can use without help
Chat	0	1	3	57
Wiki	0	0	1	60
Audio-conference	0	0	0	61
Video-conference	0	0	0	61
Forum	0	1	1	59
E-mail groups	0	0	0	61
Mobile Internet / Mobile learning	0	1	2	58

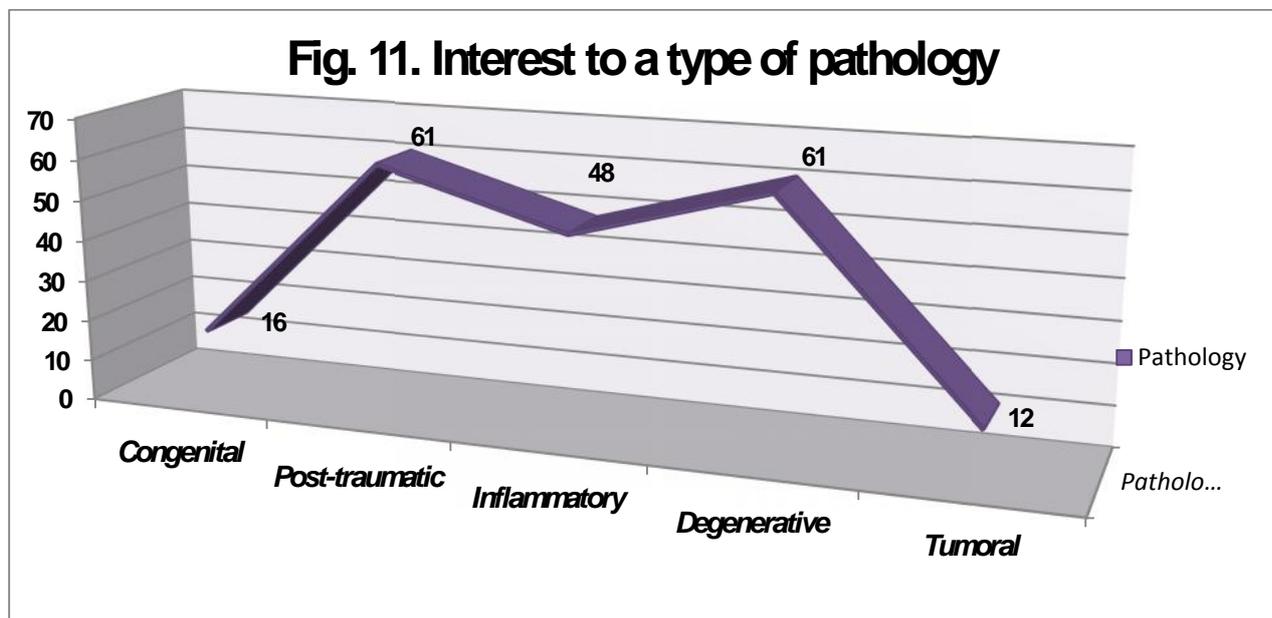


All students from the target group (100%) have positive answers to the questions „Are you interested in mobile learning?“ and „Are you interested in e-learning?“.



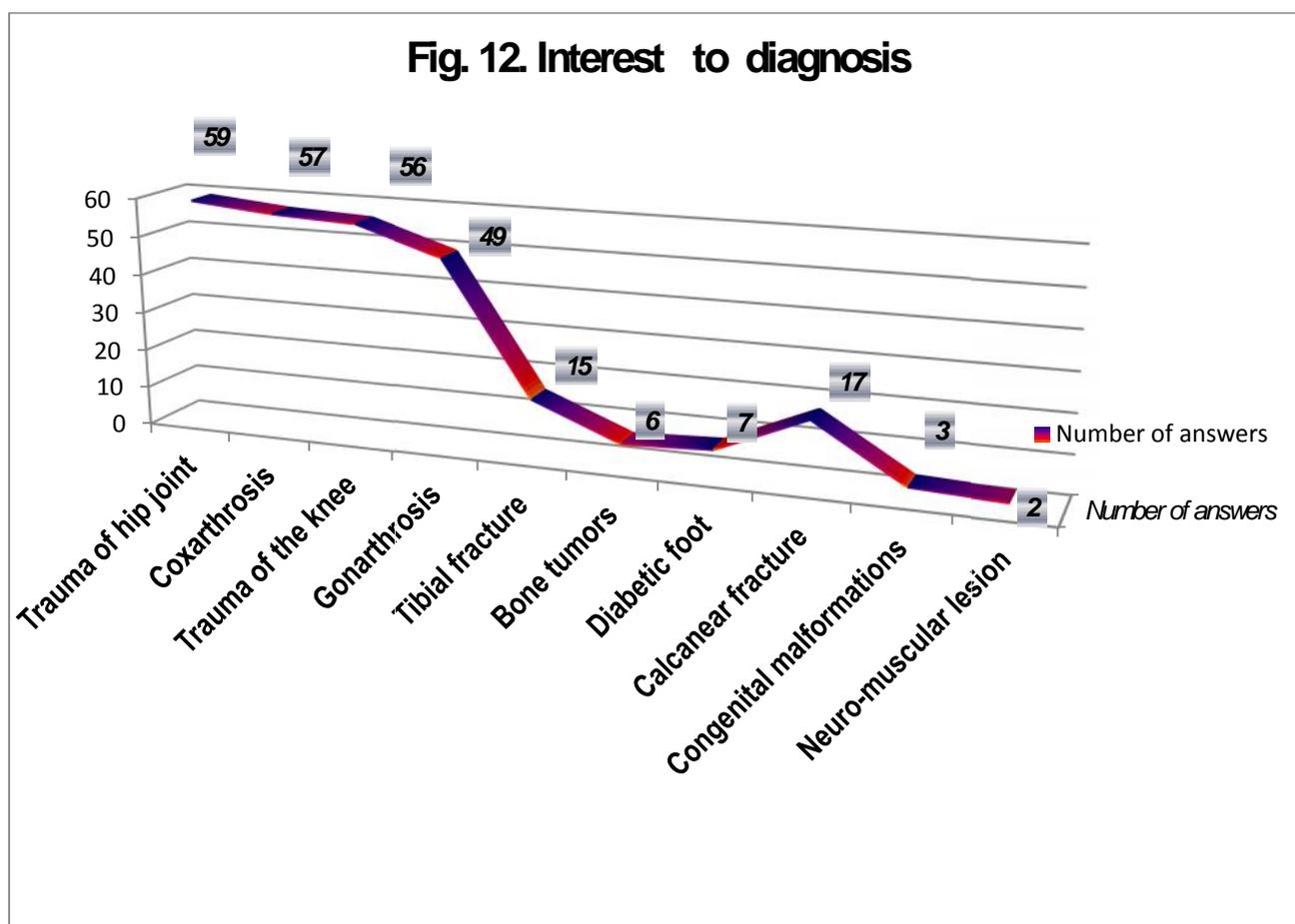
The next question „What language would you prefer for the course information?“ received two types of answers: 23 students (37,76 %) prefer e-learning in their native language, and 38 responders (62,29 %) would like education in English and in native language.

Very useful for the project were answers of questions dedicated to the most interesting „types of OT pathology of the lower extremities“ and „OT diagnosis of the lower extremities“. Both questions permit more than one response. Figure 6 presents results of the question: „What is the lower limbs OT pathology, that would interest you?“. Figure 11 presents results of the next question: „If you would apply to an e-learning platform dedicated to lower limb post op OT diagnosis (including complications) , would you be interested in...“.



We observed biggest interest to certain types of pathology: post-traumatic and degenerative conditions of lower extremities (fig. 2.6). Only a few respondents are interested in congenital and tumoral pathology of lower limbs.

Figure 12 presents the results of the question about the preferred nosology. The interest is elevated to: coxarthrosis & gonarthrosis, and to trauma of the hip & the knee. Some respondents are interested of tibiae and calcaneal fractures. Only a few respondents mentioned bone tumors, congenital malformations, neuro-muscular lesions.



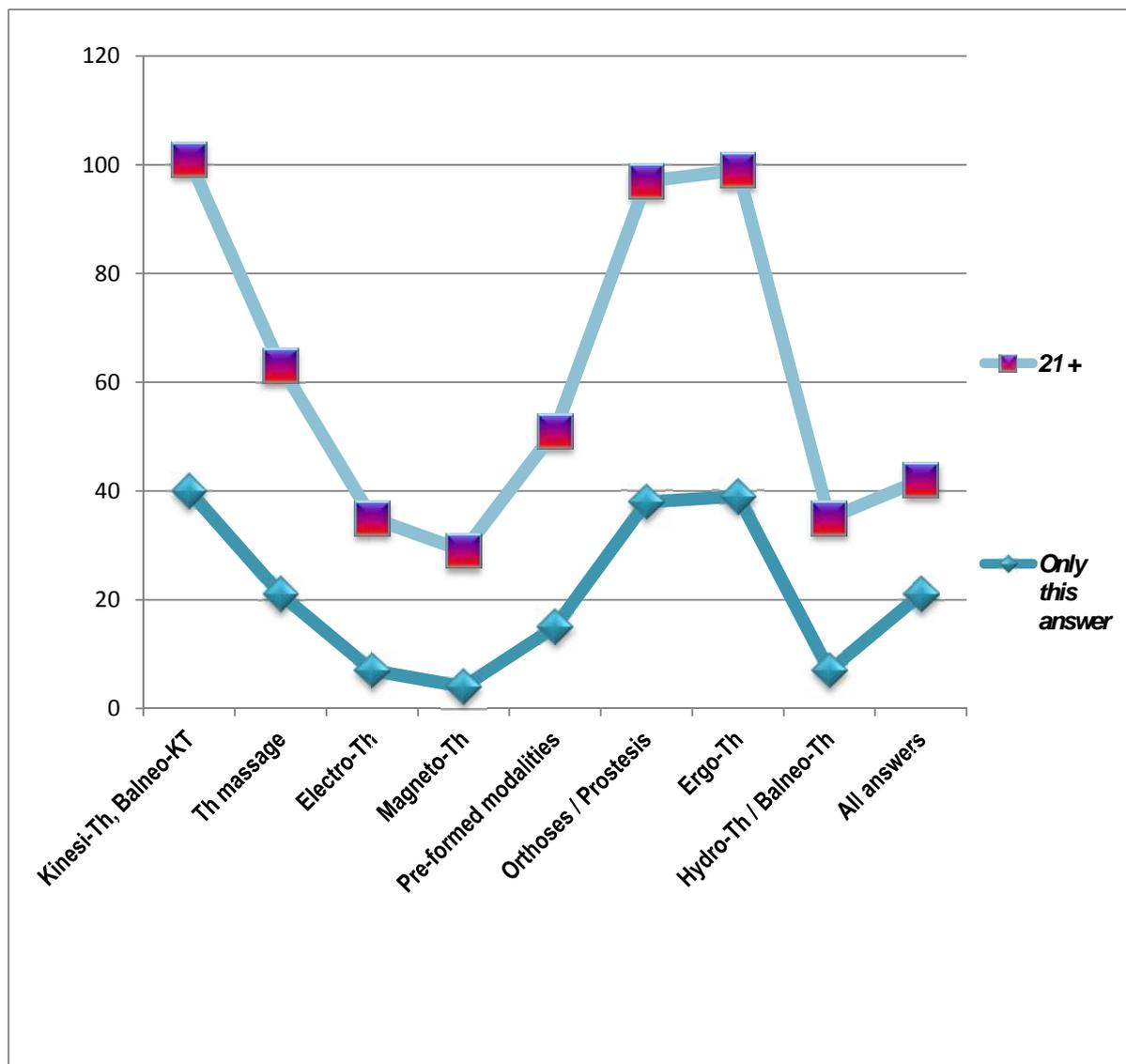
All answers of students (100%) are positive to the question: „*Would you be interested in learning about application of gait analysis in orthopedic post-surgical rehabilitation?*“.

Figure 13 presents the answers of question: „*Which of the following methods of rehabilitation, for this kind of patient, would you be most interested in?*“. More than 1 answer is permitted.



The biggest interest is demonstrated towards the kinesitherapy and hydro-/ balneo-kinesitherapy, orthosis and prosthesis, and to ergotherapy (occupational therapy). The interest is lower towards pre-formed modalities and the therapeutic massage, and towards the pure hydrotherapy and Balneotherapy. About 33 % of students (21 respondents) are answered with interest to 'all the above' (fig.13).

Fig. 13. REHABILITATION PROCEDURES





7. DISCUSSION

7.1. General Overview of the Process - Results assessment and interpretation

Analysing the field survey results and the documentary research, the general conclusions could be gathered in the following categories:

- *The knowledge of new means for training/assessment must be continuously updated;*
- *The knowledge of theory and its empirical use and terminology;*
- *Use of training/assessment methods and tools which fit the medical areas;*
- *The impact of assessment on the teaching/learning process and on teacher/instructor;*
- *The continuous improvement of various abilities development while using new means and techniques of training/assessment;*
- *Practicing the training/assessment abilities and the feedback continuously reported;*
- *The possibility of application and use of knowledge and competences gained based on the new means and techniques for training/assessment.*

Accordingly, the results were checked taking into account the professional level.

Therefore, the following groups were covered:

1. Specialists in Orthopedics and Traumatology
2. Residents in Orthopedics and Traumatology
3. Specialists in Physical & Rehabilitation Medicine;
4. Residents in Physical & Rehabilitation Medicine;
5. Physiotherapists;
6. Managers, medical educational policy makers and academic medical staff.



7.2. MEDICAL DOCTORS: Specialists in Orthopedics and Traumatology and Physical & Rehabilitation Medicine

All respondents underlined the importance of IT implementation in medicine while mentioning various fields where IT could be beneficial:

- *Continuing medical education*
- *Following new advancements in practice*
- *Keeping knowledge update*
- *Developing skills*
- *Competing with peers*
- *Obtaining news about occupational events*
- *Consulting and sharing experience with peers*
- *Conducting research and literature overview*

Also, they all mentioned the importance of IT field for the continuous improvement and knowledge updating.

They use weekly/monthly the enlisted sources of information and continuously train in any relevant topic. They share the area from good knowledge of e-tools and distance learning methodologies to having no knowledge of the issues. All use email and internet. They would like to spend from 200 to 400 hours per year for training, but the schedule and work planning do not allow them the fulfilment.

Even if their experience in e-learning is not well defined, they all trust the methods and means for the topics enlisted. Even strongly empirical topics and subjects are of interest when linked to e-tools and an acceptance of free of charge or paid (partially contribution from employees) is obvious.



7.3. MEDICAL DOCTORS: Residents in OT and in PRIM

Even if never participated in distance learning, students and residents have competencies, training needs and expectations various from those of the above categories. They use and are familiar with e-tools and they heard about distance and mobile learning. They weekly/monthly sometimes, on a daily basis, check sources of information such as new jobs and career opportunities, European new techniques, technologies, publications and Science and Research last innovations.

They use e-mail, internet, e-tools and social network and they often checked or looked for distance courses.

7.4. Managers, medical educational policy makers and academic medical staff

In Bulgaria, there is only one medical speciality working in this field: the medical doctor – specialist in Physical and Rehabilitation Medicine, but we have a lot of specialists – auxiliary staff, working in Departments / Clinics of Physical and Rehabilitation Medicine. We have Bachelors and Masters in Kinesitherapy, Bachelors and Masters in Medical Rehabilitation and Occupational therapy (Ergotherapy), Masters in Medical Rehabilitation and Balneology; Professional Bachelors in Rehabilitation, and others. This is a problem for MD, for managers and for patients too.



7.5. ACCREDITATION / CERTIFICATION OF NEW COMPETENCIES

Main issues taken into consideration in our project were to achieve validation of training by CME credits. For this reason it is important to present the certification system in each country and to make early contact with correspondent ECM office and will act as stipulated by national regulations regarding the crediting criteria in CME. Also it is important to take care if creditation is available for CME programs via the Internet, online, or by interactive informational support offered. For this reason each report will present specific details linked to these 2 aspects.

7.6. *Postgraduate medical education in Bulgaria.*

Postgraduate medical education provides specialization and professional development of individuals with higher education in the medical field, in order to improve a better level of *theoretical knowledge, practical skills and abilities* for increase the quality of care and level of performance in health system.

It is coordinated by medical universities, with the help of correspondent professional organisations: *Bulgarian Medical Union, Bulgarian Union of Medical Specialists and Association of Physiotherapists of Bulgaria.*

7.7. *Types of postgraduate medical education forms in Bulgaria.*

Postgraduate medical education form in Bulgaria includes **Postgraduate specialty education in medical universities & correspondent University Hospitals.**

Graduates of medical schools enter an exam in the correspondent Medical university with University Hospital. The exam is theoretical and written. The exam is effectuated periodically – once or twice a year. The score is based on achievements on medical knowledge. A preference list is made and depending on the score the graduates are placed to a program. The specialty programs take 5 years in Orthopedics and 4 years in Physical and Rehabilitation Medicine. The specialization ends with an exam (practical,



oral and written parts) – for evaluation of acquired practical skills and theoretical knowledge.

7.8. *Continuous Medical Education (CME) in Bulgaria*

The post-graduated medical education may include too thematic courses or individual practical education. Thematic courses include 2-3 lectures per day and 3-4 hours clinical practice with patients). Individual practical education is dedicated only to clinical practice. Normally Sofia Medical University organizes courses for participants from all the country. By the way, every medical doctor must effectuate continuing medical education (credits for every year). For every form of CME, organized by Medical universitites or University hospitals, participants receive a number of credits (about 5-25 credits for thematic course or 5 credits per day for individual course). Some scientific societies, members of Bulgarian Union of medical specialists (member of the European Union of Medical specialists - UEMS) organize scientific events (congresses and conferences) with hands-on workshops. Participants receive credits for participation in every event (if accredited by the Bulgarian Medical union).

7.9. *Students' opinion*

The results of our investigation proved that students in Bulgaria have the potential to accept an electronic educational platform on „Gait rehabilitation“.

All of them are familiar with e-learning. An important part of respondents prefer a bilingual education (in native language and in English).

The areas of biggest interest are post-traumatic and degenerative pathology of lower extremities, particularly traumatic injuries and arthrosis of the hip and the knee.

They would like to receive detailed information about kinesitherapy and hydrokinesitherapy, occupational therapy, prosthesis and orthosis. All of them are interested in learning gait analysis.

8. CONCLUSIONS

Medicine is one of the most rapidly changing fields of science and practice. Most of the surgical methods which were considered as gold standard have changed. Even now physicians are aware that the methods they are applying currently may not exist 5 to 10 years later. Research and development is taking place all over the globe and results are disseminated world wide. To assure quality of service given for the patient a medical worker should always be in touch with the current advances.

Bulgarian students are interested by electronic education (e-platforms and training). Electronic learning is interesting for our students, because they consider a lot of advantages: access to interactive multi-media materials, results of investigations in a lot of scientific applications and information sources from all the world, possibility of information exchange, potential of knowledge and application of international standards of education and qualification [5,6]. They consider the importance of introduction of this type of education in Bulgarian OT rehabilitation – with the objective of amelioration of the quality of care and the quality of life of Bulgarian patients [1,9].

A medical student or a resident gathers vast amount of information during the education period. After graduation it is usually upto personal preference for one to keep upto date. The ones who do not keep in touch with the advances in medicine are doomed to stay faded in professional life.

A couple decades ago, before the internet, access to knowledge was difficult. Medical applications would vary greatly between countries. One would either require to travel abroad to gather current information or subscribe to printed periodicals. Medline was accessed via cd's which were updated every 6 to 12 months. Internet provided an incredible ease in access to knowledge. Availability of audio and video media made skill development possible in addition to knowledge.

Currently internet has its disadvantages too. One may reach vast amount of knowledge with variable validity. Even in the literature one can find support for any idea coming to mind. Evidence levels and metaanalysis studies emerged to filter the knowledge. For the skills education we still prefer the sources we trust. Several countries have prepared guidelines for treatment of most common diseases. For assurance of quality and validity of knowledge and skills information formation of standards is very important.

Nearly everyone, especially in profession related to medicine have easy access to internet. The questionnaire results also confirm this. Availability of a trustworthy source of information where standards of treatment are formed by agreement of multiple centers and where the information is supported with visual documents will readily be accepted and used by the residents and specialists.

Proposals

- a. To inform associations dealing with professional education identified as references on our platform, about the opportunity to participate as users to courses offered by our platform.
- b. Maintaining of questionnaires on the project website appealing to visitors to help us in expanding the research to other geographical areas.



10. ANNEXES

10.1. ANNEX 1.

NEEDS ASSESSMENT QUESTIONNAIRE IN ORTHOPEDICS

PERSONAL DETAILS

(These details are required for communication purposes only and will not be disclosed)

NAME: * optional

Position:

Resident in.....

Medical doctor specialization.....

Member of professional organization name of organization.....

Manager

Institution.....

Department.....

Position.....

EMAIL: * optional

*Tick the box that suits best your situation.

1. . How often do you access the internet?

Daily 2-3 times a week weekly

2. How much do you use the internet for improving your professional career?

Daily Weekly Monthly

3. Which of the following e-tools are you familiar with and to which extent? Tick the box that suits best your situation.

	Never heard of it	I have heard but never used it	I can manage with help	I can use it
Chat				
Wiki				
Audio conferencing				
Video conferencing				
Forum				
e-mail groups				
Internet Mobile/ mobile learning				

4. What are the main categories of information that you require? How often do you use them?

Clinical issues	<input type="checkbox"/>	Daily <input type="checkbox"/>	Weekly <input type="checkbox"/>	Monthly <input type="checkbox"/>
Medical Legislation	<input type="checkbox"/>	Daily <input type="checkbox"/>	Weekly <input type="checkbox"/>	Monthly <input type="checkbox"/>
Medication	<input type="checkbox"/>	Daily <input type="checkbox"/>	Weekly <input type="checkbox"/>	Monthly <input type="checkbox"/>
Medical events	<input type="checkbox"/>	Daily <input type="checkbox"/>	Weekly <input type="checkbox"/>	Monthly <input type="checkbox"/>



News Publications Daily Weekly Monthly
 Science & Research Daily Weekly Monthly

5. How do you prefer to improve your professional career?

Classical courses Workshops e learning

1. Are you interested in e-learning?

Yes No

2. Are you interested in mobile learning?

Yes No

3. Have you looked for e-learning on internet?

Yes No

In what domains.....

9. How many hours/per year do you think are necessary to refresh your knowledge and improve skills and competencies?

.....

10. If you would have on your disposal an e-learning platform for continuous education would you apply to it if it is on free basis?

Yes No

11. If you would have on your disposal an e-learning platform for continuous education would you apply to it if it is on payment basis?

Yes No

12. What language would you prefer for the course information?

.....

13. What is the pathology, localized to the lower limb joints that would interest you?

Congenital	Yes	No
Post-traumatic	Yes	No
Inflammatory	Yes	No
Degenerative	Yes	No
Tumoral	Yes	No

14. Would you be interested in learning about application of gait analysis in orthopedic surgery?

Yes No



15. If you would apply to an e-learning platform dedicated to lower limb orthopedic pathology (including complications), would you be interested in:

Hip trauma	Yes	No
Hip osteoarthritis	Yes	No
Knee trauma	Yes	No
Knee osteoarthritis	Yes	No
Surgery for neuro-muscular disorders	Yes	No
Ankle osteoarthritis	Yes	No
Fractures of tibia and ankle	Yes	No
Ankle arthrodesis	Yes	No
Diabetic foot	Yes	No
Congenital and developmental disorders	Yes	No
Fractures of the calcaneum	Yes	No
Bone tumors	Yes	No

16. What kind of surgical procedures for lower limb pathology would you be interested in being detailed on an e-learning platform:

Diaphyseal fracture fixation	Yes	No
Articular and peri-articular fracture fixation	Yes	No
Hip arthroplasty	Yes	No
Knee arthroplasty	Yes	No
Knee osteotomy	Yes	No
Hip osteotomy	Yes	No
Ankle arthrodesis	Yes	No
Tenotomies and capsulotomies	Yes	No
Ligamentous surgery	Yes	No

17. Do you think that gait analysis can be useful for certain aspects of orthopedic practice

Patient evaluation	Yes	No
Pre-operative planning	Yes	No
Establish the timing of surgery	Yes	No
Guiding post-op rehabilitation	Yes	No
Predicting the onset of complications	Yes	No

18. If you had to describe a successful orthopedic treatment, this would include

Good functional result	Yes	No
No complications	Yes	No
Social and professional re-integration of the patient	Yes	No
Radiological healing, no matter the functional result	Yes	No

19. When referring to orthopedic procedures, your major points of interest(s) are:

Indications for each procedure	Yes	No
--------------------------------	-----	----



Surgical approach	Yes	No
Necessary instruments	Yes	No
Bone preparation	Yes	No
Implant positioning	Yes	No
Tips and tricks	Yes	No
Possible failures and complications	Yes	No

20. Are you familiar with human gait analysis?

Yes No

21. Do you use human gait analysis in your practice?

**Yes by clinical observation
Yes by computerized
methods
No**

22. Would you be interested in learning about application of gait analysis in rehabilitation?

Yes No

23. Would you be interested in a Forum on medical topics?

Yes No

24. Would you be interested in sharing your own experience for second opinion?

Yes No



10.2. ANNEX 2.

NEEDS ASSESSMENT QUESTIONNAIRE IN REHABILITATION

PERSONAL DETAILS

(These details are required for communication purposes only and will not be disclosed)

NAME: * optional

Position:

Resident in.....

Medical doctor specialization.....

Physiotherapist specialization.....

Member of professional organization name of organization.....

Manager

Institution.....

Department.....

Position.....

EMAIL: * optional

*Tick the box that suits best your situation.

1. How often do you access the internet?

Daily 2-3 times a week weekly

2. How much do you use the internet for improving your professional career?

Daily Weekly Monthly

3. Which of the following e-tools are you familiar with and to which extent? Tick the box that suits best your situation.

	Never heard of it	I have heard but never used it	I can manage with help	I can use it
Chat				
Wiki				
Audio conferencing				
Video conferencing				
Forum				
e-mail groups				
Internet Mobile/ mobile learning				



4. What are the main categories of information that you require? How often do you use them?

Clinical issues	<input type="checkbox"/>	Daily <input type="checkbox"/>	Weekly <input type="checkbox"/>	Monthly <input type="checkbox"/>
Medical Legislation	<input type="checkbox"/>	Daily <input type="checkbox"/>	Weekly <input type="checkbox"/>	Monthly <input type="checkbox"/>
Medication	<input type="checkbox"/>	Daily <input type="checkbox"/>	Weekly <input type="checkbox"/>	Monthly <input type="checkbox"/>
Medical events	<input type="checkbox"/>	Daily <input type="checkbox"/>	Weekly <input type="checkbox"/>	Monthly <input type="checkbox"/>
News Publications	<input type="checkbox"/>	Daily <input type="checkbox"/>	Weekly <input type="checkbox"/>	Monthly <input type="checkbox"/>
Science & Research	<input type="checkbox"/>	Daily <input type="checkbox"/>	Weekly <input type="checkbox"/>	Monthly <input type="checkbox"/>

5. How do you prefer to improve your professional career?

Classical courses Workshops e learning

6. Are you interested in e-learning?

Yes No

7. Are you interested in mobile learning?

Yes No

8. Have you looked for e-learning on internet?

Yes No

In what domains.....

9. How many hours/per year do you think are necessary to refresh your knowledge and improve skills and competencies?

.....

10.If you would have on your disposal an e-learning platform for continuous education would you apply to it if it is on free basis?

Yes No

11. If you would have on your disposal an e-learning platform for continuous education would you apply to it if it is on payment basis?

Yes No

12. What language would you prefer for the course information?

.....
.....



13. What is the pathology, localized to the lower limb joints, that would interest you?

- Congenital **Yes No**
- Post-traumatic **Yes No**
- Inflammatory **Yes No**
- Degenerative **Yes No**
- Tumoral **Yes No**

14. If you would apply to an e-learning platform dedicated to the joints of the lower limb pathology, requiring surgery, would you be interested in:

- Kinotherapy/ Hidro – Balneo-kinesitherapy Yes No
- Massage Yes No
- Electrotherapy Yes No
- Magnetotherapy Yes No
- Other preformed physical modalities Yes No
- Techniques for orthosis/prosthesis Yes No
- Occupational therapy Yes No
- Balneology Yes No
- All of the above Yes No

15. Which of the following methods of rehabilitation, for this kind of patient, would you be most interested in?

- Kinotherapy/ Hidrokinetotherpay **Yes No**
- Masage **Yes No**
- Electrotherapy **Yes No**
- Techniques for orthosis/prosthesis **Yes No**
- Ocupational therapy **Yes No**
- Balneology **Yes No**
- All of the above **Yes No**

16. Are you familiar with human gait analysis?

Yes No

17. Do you use human gait analysis in your practice?

Yes by clinical observation

Yes by computerized

methods

No

18. Would you be interested in learning about application of gait analysis in rehabilitation?

Yes No



19. Would you be interested in a Forum on medical topics?

Yes No

20. Would you be interested in sharing your own experience for second opinion?

Yes No



10.3. ANNEX 3.

NEEDS ASSESSMENT QUESTIONNAIRE ADDRESSED TO MANAGERS

(MANAGERS- Staff in the medical educational system, Institutional officials at clinical orthopedic and rehabilitation departments, Medical education and related associations in the field of orthopedics and rehabilitation; national organizations)

PERSONAL DETAILS

(These details are required for communication purposes only and will not be disclosed)

NAME: * optional

Institution:
Department:
Position:
EMAIL: * optional

*Tick the box that suits best your situation.

1. How important is continuous medical education for you and your employees?
.....
.....

2. How many hours and /or ECTS credits do your employees need yearly for continuous medical education, according to your national health legislation?
.....
.....

3. Are you interested in e-learning?
Yes No

4. Are you interested in mobile learning?
Yes No

5. Have you looked for e-learning courses on internet?
Yes No

In what domains

6. Employees in your institution are familiar /use an e-learning platform?
Yes No



6. In what medical domains do you think that e-learning would be useful for professional formation of your employees?

.....
.....
.....

7. If you would have access to an e-learning medical platform would you promote it within your institution?

Yes No

8. If you would have on your disposal an e-learning platform for continuous education would you apply to it for your employees if it is on free basis?

Yes No

9. If you would have on your disposal an e-learning platform for continuous education would you apply to it for your employees if it is on payment basis?

Yes No

Comments:

.....
.....
.....
.....

10. What language would you prefer for the course information?

.....
.....