

With Brains, Hands and Heart

20 Years of Physiotherapy Education in English in SAMK

Merja Sallinen (ed.)

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CONTENT

To the reader	9
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Part 1

Preface: From local to international	10
1 National objectives for international education	12
2 Physiotherapy education in English – 20 years in Satakunta	15
3 Studying physiotherapy in SAMK.....	21
4 It is wonderful to teach the students new skills!.....	24
5 Small-scale projects integrated to physiotherapy studies promoting adapted physical activity.....	26

Part 2

6 Twin-stick exercising – an innovation created during physiotherapy studies spreads out internationally	31
7 Ergonomics in patient transfers.....	36
8 SomeBody®: supporting the self-concept and body awareness	39
9 Challenges in physiotherapy of low back pain	43
10 A sport specific approach to prevent adductor-related groin pain: assessment and exercise	47
11 How to approach chronic widespread pain in physiotherapy.....	50
12 Chronic shoulder pain and central sensitization.....	54
List of authors.....	57

To the reader

Physiotherapy education in English in Satakunta University of Applied Sciences celebrated its 20th anniversary in October 2014. The Anniversary Seminar brought together current students and alumni, teachers, clinical tutors as well as partners and co-workers from Finland and abroad. The program of the Anniversary Seminar included a key-note lecture, invited speeches and a wide variety of practical and theoretical workshops. It was an honor and pleasure to host the Minister of Education, Science and Communications and our foreign experts from United Kingdom, the Netherlands and Spain during the seminar. Through this publication we in physiotherapy education in SAMK wish to share the insights, theoretical knowledge and practical ideas that were presented in the seminar.

The first part of this publication approaches the education from the vantage point of internationalization. Why is it important to have international degree programs in higher education in Finland? What is required when a programme is implemented in English? What are the experiences from this 20-year-journey and what are the lessons learned? What is the physiotherapy education like today? In addition, ideas of how the surrounding community can benefit from small scale projects that the students provide within their studies are introduced.

The second part of the publication (chapters 6 to 12) introduces topics that were presented in the workshops. These articles deal with practical issues that are in the core of physiotherapy today: ergonomics, body awareness, adapting physical activities and treatment of patients with chronic pain.

As an editor of the publication, I wish to address my warmest thanks to all the authors for their contribution. I also thank Editor-in-Chief, PhD Anne Sankari for her invaluable help and intensive collaboration throughout the whole process. LicSci Tuija Huokkola is kindly acknowledged for language revision of the articles.

Pori, December 1, 2014

Merja Sallinen
Editor

Preface: From local to international

Year 1994, twenty years back, seems like a short while ago. Only when considering some of the unbelievable societal and technological changes which have taken place during this time, can one understand the fast, continuous and multifaceted change the world has experienced. In 1994, Finland was not a member of the European Union and had never won the World Championship in ice hockey. In 1994, I got my first cell phone, the groundbreaking Nokia 2110 GSM model. It featured the great Finnish innovation, the Short Message Service (SMS). In 1994, three years after the fall of the Soviet Union, the last Russian troops were withdrawn from the Baltic States. It is interesting to think, how those personal, national and international processes have evolved until today.

Twenty years ago internationalization was not a common word in higher education institutions. However, the Ministry of Education had already at that time started to urge the higher education institutions to establish degree programmes in a foreign language. Active physiotherapy teachers were bold and brave enough to accept that challenge at the recently founded Satakunta University of Applied Sciences.

Why did physiotherapy, from all the disciplines, become a pioneer in internationalization, expanding the education from local to an international level? One explanation is that physiotherapy has always been an international profession. During the last century, depending on the time and political situation, education in physiotherapy has been influenced by science paragons from Sweden, Germany, US and Switzerland. During the past 30 to 40 years the Nordic school in physiotherapy has grown in importance with prevention, early interventions and a holistic approach as its focus points.

Education in English language has definitely been demanding for the teachers, at least in the beginning. All teaching material had to be produced from scratch, and foreign specialized vocabulary had to be brought into everyday life. A particular challenge arose from the lack of written information and material i.e. guidelines, rules, instructions and forms in English language. Everything had to be translated as the program developed. I regret to state that even today the university sometimes oversees our international students, and for this and many other reasons, we still need to take further steps in internationalization.

If the physiotherapy education in English has been demanding, I am sure it has also been rewarding. Physiotherapy education has had a major impact on the internationalization of Tiilimäki campus and even the whole university. Besides the

numerous overseas degree students, the education in English has enabled the university to accept exchange students conducting both practical and theoretical studies. This in turn, has provided new exchange possibilities abroad for the Finnish students.

This leads me to think about these physiotherapists who so unselfishly wish to promote both local and international good. I do not have to invent any definitions by myself, a Finnish journalist and writer Markus Kajo has already done it: "A physiotherapist in Finland is a person whose psyche and physical DNA are closer to nitrous oxide and Para rubber tree than our moody folk."

I hereby wish to congratulate the Degree Programme in Physiotherapy of the Satakunta University of Applied Sciences for successfully carrying out physiotherapy education in English for the full 20 years. A job well done!

Juha Kämäri

President, Satakunta University of Applied Sciences

1 National objectives for international education

Krista Kiuru, Minister of Education, Science and Communications

Internalization of society requires international education

The basic premises in our economic and employment strategy are to ensure a high standard of work and productivity. Finland, like the rest of the Nordic countries, does not compete as a country of cheap labour in the global market. Our added value lies in our ability to supply high competence. We must be able to make Finland more attractive globally in order to retain a competitive edge. Therefore, it is vital to increase internationalisation in Finnish higher education. If we have more internationally oriented higher education institutions, we also have a more pluralistic society, stronger international networks and better conditions for innovations to flourish. Creativity and new lines of thought thrive in an environment, where old and new ideas merge and different cultures meet.

Internationalization improves our level of national competence, since it often brings up-to-date and high-quality knowledge into the country. One example is broad research projects, which are increasingly carried out as extensive international joint ventures. In these projects, the most modern equipment and expensive infrastructure are in joint use. The best projects, which have a widespread impact, are carried out in international cooperation.

Most of the new scientific knowledge produced abroad. This knowledge is also needed in the Finnish society and employment market. In fact, only around one per cent of all new scientific knowledge is generated by the Finns in the world. Therefore, international cooperation is essential in today's science community and network economy. International collaboration is one way of improving the quality of education and research. Overlapping activities can be removed and both domestic and foreign resources can be combined in joint projects. In order to be able to take part in international cooperation, we must keep abreast of developments to give added value to our international partners.

We must ensure that public funds are distributed effectively. International collaboration allows us to make use of competences which we do not have, or it is not expedient to use our limited resources to. In the best scenario, it would be possible for our tertiary education students to complete parts of their degree

in different institutions of higher education. Indeed, this would be international development at its best and would offer real incentives for mobility!

Benefits of internationalization from the students' perspective

The vision of internationalisation strategy for Finnish institutions of higher education is to make sure that by 2015 all graduates are properly equipped to work in international settings. By international networking, the institutions of higher education, and especially students and staff members, strengthen their own potential and ability to participate in global labour markets. In addition, their own region gains benefits of internationalization by improvement in the level of competence and the resource base. International skills are of essence in today's employment market, where good social skills blend smoothly with the ability to understand and make use of knowledge generated abroad. Employers value people who can operate flexibly in different contexts and with different types of people. The Finnish society is becoming more multicultural and we need to learn to work in multicultural work settings.

International mobility makes it possible to work and network with foreign partners with new perspectives. Exchange student programmes and trainee programmes give students a possibility to experience different learning environments and cultures. In the best cases they have access to sources of material which are not available in Finland. International interaction offers a unique opportunity to become familiar with different methods, fields and ideas. Studying and working abroad also improves students' language skills and understanding of different cultures and societies. Therefore, it is a valuable asset for the individual in present-day Europe which offers limitless mobility for its workforce.

As international cooperation becomes more widespread, people's ways of working also become more global with no solid boundaries. As a result, it is important to recognize the impact of our own work beyond our immediate work setting. Whether it is at work or elsewhere in our lives, we all face questions related to global responsibility. Most of us are already familiar with the notion of an ecological footprint. In the future, many of us have to weigh our actions from a global standpoint to a growing extent. In other words, we need to assess, whether we behave in a sustainable way both ethically and morally.

Internationalisation at home

Obviously not all students can actually take part in exchange student programmes. There are more adult students in institutions of higher education than before and situations are very different among students. Many students have already worked or studied abroad before enrolling in the tertiary education. It is important

to ensure that we can provide instruction in foreign languages in the tertiary education. This is a way of giving a possibility to internationalisation at home. Therefore, the institutions of higher education must be able to attract foreign students, lecturers and researchers to Finland. Foreign lecturers and researchers bring new perspectives and novel ideas to our system of education. To safeguard high international standards, instruction in foreign languages and the standard of teaching must be developed in collaboration with different fields and actors. Again, a good solution is sharing resources.

Education offered in foreign languages improves student mobility and attracts more foreign students to our degree programmes. High-quality supply increases demand. Moreover, instruction given in foreign languages opens up avenues to studying for immigrants and foreigners living in Finland.

Foreign students in exchange programmes and degree programmes are a valuable asset in making Finland more international. Therefore, it is important that they feel at home in their new hometown in Finland, even if it is for a short time only. The tutoring system adopted by the student unions is essential to reach this goal and it should be supported and valued. It is always easier to ask for help from your peers. However, we agree with the student organisations that the overall responsibility for integrating foreign students must not rest on students alone. The Ministry of Education and Culture would like to see that different services are provided in the institutions of higher education. In other words students arriving in Finland and people entering the university would have access to information of accommodation, health care and other services from one centralised location. Moreover, the individual needs of foreigners and their family members should be catered for in all information that is provided. Well-functioning services make it easier to come to Finland, make our institutions of higher education more attractive and create better conditions for wanting to stay in Finland. I hope that our institutions of higher education appeal to talented foreign students and that all the services for students are of high international standard.

2 Physiotherapy education in English – 20 years in Satakunta

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Introduction

This text attempts to answer three questions in relation to physiotherapy education in English in Satakunta. The first question is: why is the bachelor-level degree programme in physiotherapy offered in English in Satakunta University of Applied Sciences? Secondly, who were the students and key players in this programme during the first twenty years of its existence? Finally, what do we know about the first twenty years of the degree programme in physiotherapy?

The views presented below are the result of the author's own reflections on some known facts, but also on some very personal reflections from one of the "insiders", who has been very much involved in the programme from the beginning until today.

Why physiotherapy education in English in Pori?

Physiotherapy education started in Satakunta since 1984. Physiotherapy assistants (kuntohoitaja) had already been trained in Pori since 1972. The reason for starting education of physiotherapists was a considerable shortage of physiotherapists in the region. Physiotherapy education in Satakunta was throughout its early existence a popular choice of career among applicants, with five applicants per study place on average (Mattila, 2005). In 1994 the physiotherapy education in Finnish was well-established in the region and within the then Satakunta Polytechnic.

According to Mattila (2005), the ethos of physiotherapy education was international, and this manifested itself in the active use of international literature during the studies. The physiotherapy lecturers in Satakunta were actively involved in international networks such as Nordiska Undervisningsfysioterapeuter (NUF). They participated in, and gave presentations at international meetings such as the World Confederation for Physical Therapy (WCPT) conferences.

In the late 1980's the Finnish ministry of Education set the first national goals of increasing international student mobility (Garam, 2009). Provision of tuition in English was seen as instrumental in order to achieve student mobility targets. The physiotherapy programme in English was set up in a climate where both national and institutional strategies called for internationalization of education. The Ministry of Education (presently Ministry of Education and Culture) gave funds to the development of programmes which were taught in English (Tella, Räsänen & Vähäpassi, 1999). The climate was indeed favourable, but the setting up of a full degree programme in English was a result of high commitment among the teachers involved and the senior management. Twenty years ago it was, nevertheless, a brave decision by the main actors in the programme to commit themselves to the challenge presented by the Ministry of Education. The senior management of the polytechnic showed a remarkable trust in the main actors as well as a commitment to internationalization of education at institutional level.

Key persons in the degree programme in physiotherapy

The most important persons in any educational programme are the students. Physiotherapy students evidently need teachers, but running a full degree programme in English also demands the input of many other specialists. All three of these groups are presented below.

The students

To date, 15 groups of students have started physiotherapy studies in English at SAMK. In the early days of the programme the groups of students were small and the majority of students were Finnish. As the programme matured, the student groups grew and the proportion of foreign students increased. At the beginning of the education there was an intake of students every other year, but since 2009 students have been taken in annually.

The first group in 1994 was a small group of eleven Finnish students. In 1996 the group with 14 students had four international students with one from Norway, the UK, Ireland and Latvia. This group studied alongside the Nursing programme in English, which made it possible to have some joint courses. The two programmes which were taught on the same campus had an influence on the internationalization of the campus at a time when exchange student mobility was not yet as usual as today. The nursing programme in English added to the foreign nationalities on campus with students from Kenya, Tanzania, Latvia and the USA.

The total number of graduates by the end of September 2014 was 134 physiotherapists with 28 of the graduates with other nationality than Finnish (21%). The 28 graduates have come from 21 different countries from all continents.

One of the main purposes of increasing teaching in English was to facilitate student mobility. Reliable data is available from 2005, and when taking the planned

exchanges for the spring term 2015 into account, 86 students from the Degree Programme in Physiotherapy will have participated in an international mobility programme as part of their studies. The 125 incoming physiotherapy exchange students during the same time period gives proof that providing theoretical courses and placements for non-Finnish speaking students is an effective means to increase student mobility.

Providers of the programme

A full degree programme offered in English requires more than a handful of enthusiastic teachers. Perhaps this was not fully understood by “the pioneers” when committing themselves to the challenge. A full programme requires clinical placements, clinical tutors, teachers from other disciplines as well as student services provided in English. Figure 1 shows that the 20 years of education of physiotherapists in English in Satakunta is the result of hard work by many key-players.



Figure 1. Key-players in physiotherapy education

Vuokko Karjala, in her role as the principal showed trust in the staff and supported the planning of and the early stage of the programme vigorously. Later, dean Anneli Mattila continued to offer favorable conditions for the programme supported by SAMK’s President Seppo Pynnä for whom internationalization of SAMK was high on the agenda. The programme continued to be supported by the more recent deans Eeva-Liisa Moisio and Tuula Rouhiainen-Valo.

The programme would perhaps not have got off the ground without the vision and courage of the Head of Department Anne Kärki, who showed decisiveness and had the role of a promoter for the programme while simultaneously working as a teacher within the programme. A broad commitment to teaching in English was agreed upon among the physiotherapy lecturers. The commitment meant participation in Teaching Content in English language education, as well as undergoing further language testing and training schemes alongside pursuing further academic education within their own fields.

Physiotherapy education also needs a strong input from other specialties than physiotherapy. Lecturers in anatomy and physiology, physical education, nursing, information technology and English as well as Finnish language and communication teachers also committed themselves to providing tuition in English. The programme was extremely lucky to benefit from the support and participation of native English speaking teachers from the very beginning of the programme. In addition, the cooperation and joint development projects with teachers from other SAMK English degree programmes have been crucial for the success of the programme. A strong international partner university and health care organisation network has been of great importance for the programme. Professor James Selfe from the University of Central Lancashire in the United Kingdom has been, and still is, a much appreciated teacher and co-operator in research projects.

We have been very fortunate to have good relations with, for example the English Play School, the Cygnaeus School, Winnova vocational education and training, and various associations such as the Multicultural association in Pori. All these organizations were needed in training physiotherapy students' practical skills with people from different age groups.

Physiotherapists have never been trained without the input of clinical mentors. Satakunta has been fortunate to have mentors who have been committed to the programme from the beginning. It is fortunate that the small group of enthusiastic physiotherapists has grown over the years. The efforts of every clinical mentor are much appreciated. Arja Nummelin has to be mentioned as she, as chairman of the regional physiotherapy association, has had an important role in promoting the goodwill towards the programme among the physiotherapists in Satakunta.

No degree programme runs without administrative and service function support. During the past 20 years the administrative and service functions have developed processes which also cater for the needs of foreign degree programme students.

The outcomes of the programme

The 134 graduated physiotherapists with their generic and professional competencies which they have achieved during the education are the main

outcome of the programme. Many of the graduates have continued their education to the master's level. Two of our graduates have returned to the programme as senior lecturers after master-level studies and pedagogical training. (See Sallinen's article on page 19.) The degree programme in English has mainly been run by the same teachers and personnel who are also responsible for the parallel programme which is run in Finnish. Thus, curricular and other development work has always concerned both programmes.

Aspects of the Degree Programme in Physiotherapy have also been studied in different fields. In 1999 Finnish Higher Education Evaluation Council FINHEEC evaluated the programme (Tella, Räsänen & Vähäpassi, 1999). The evaluation focused mainly on the linguistic aspects of degree programmes which were taught in English. The evaluation found that, at the early stages of the programme, there was need for further training of both teachers' language skills and academic level. Since 1999 the academic level, competence in teaching in English and intercultural competence have been developed among the staff. The evaluation group stated in their conclusion of the evaluation that "[t]he programme seems to give the students a feeling of international competence and as such serves its purpose quite well" (Garam 1999, 64).

A survey *The experiences of the education, employment and readiness for the working life* (Törne, 2008) described the experiences of 76 graduates by the end of 2007. The survey, which had a response rate of 61 per cent, mainly describes the views of the Finnish graduates as 87 per cent of the respondents were Finnish. As many as 83 per cent of the respondents recommended the programme and this fact was considered a strong factor in favor of the programme.

International degree programmes were evaluated in Finland in 2012 (Välilmaa et al., 2013) in order to provide an overview of the situation in Finland. The Degree Programme in Physiotherapy was also included in this evaluation, although findings related to particular programmes are not published in the report. However, it is easy to agree with the main conclusions of the report. Internationalization of higher education was taken seriously in SAMK and the English programmes were also seen as an instrument to achieve institutional internationalization. In addition, the international degree programmes of SAMK and the incoming international exchange students are a strong and important agent in the internationalization of the region.

The student body of the degree programme in physiotherapy has grown more diverse over the years and this is indeed what we have aimed for. The diverse student body, however, demands more cultural competence and sets new demands on pedagogic approaches. According to the results, the approachability of the Finnish teachers was found to be one of the strengths in the international programmes. This seems to be in line with the feedback we get from the students and exchange students. Unfortunately, it is also easy to agree with some of the

main challenges pointed out, i.e. the difficulties our international graduates have in gaining access to the Finnish labour market. This is a challenge which should be addressed seriously. In addition, we need to develop the follow-up and contacts with our alumni.

Conclusions

Twenty years ago the climate was favorable to internationalization of higher education. As teachers in a popular and already international field of study, we had the courage to commit ourselves to teaching in English. We wouldn't have succeeded without the support of the management and cooperation with institutional, regional and international partners of cooperation. In conclusion, there are many key players involved with the program. With regards to the students, it is fair to conclude that the group size has grown and the proportion of students with international background has risen.

Based on what we know, it seems that we have managed to educate physiotherapists who have a sense of international competence. We all have been a strong force in the internationalization process of the whole university of applied sciences. We have also had a real effect on the internationalization of the employment market in the region.

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3 Studying physiotherapy in SAMK

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For many years physiotherapy education has been the most popular programme among SAMK's applicants. This year over 600 applicants were registered, and for almost 250 applicants SAMK was their first choice, which is more than 12 times the intake we have. In Finland the Degree Programme in Physiotherapy (DPP) is offered in 15 universities of applied sciences and SAMK was the fourth most popular choice among them. The DPP is offered in English only in SAMK and we had about 170 applicants for it, which is more than eight times the number of students we can take. The education takes three and a half years and leads to legitimation to work as a physiotherapist in Finland. This paper aims at describing what it is like to study physiotherapy in SAMK.

The core of the physiotherapist's daily work consists of limitations in functioning and mobility as well as their prevention and rehabilitation through different therapy interventions. Therapy can include, for example, manual treatments, exercise to improve physical capacity or motor skills and health promotion and guidance. Therefore, good body awareness, motor coordination and good social skills are beneficial in the daily work as a therapist. Physiotherapeutic skills are based on strong theoretical knowledge of anatomy and physiology as well as on motor control and learning and the impact of various illnesses on them.

Training practical skills in class and in physiotherapy settings

In the DPP exercising practical skills plays a major role. Practical skills are included in almost every course in professional studies. In some courses the skills are exercised with fellow students but we often invite "real clients" or client groups to the classroom. In this way, the students have an opportunity to practice and test their skills and knowledge safely in guided situations even before their first clinical placement in the third semester.

In addition to 30 credits of practical training at school, the students complete 45 credits of physiotherapy practice in clinical placements. This is divided into 5–6-week periods which include working at hospitals, healthcare centers, rehabilitation centers or private clinics, to mention a few. All students have one practice period in Soteekki – or some other unit where innovative services and entrepreneurship are in the core of the practice.

Hands are the physiotherapist's most important tool

Hands are the most important tool for any physiotherapist. They are used not only for examining the anatomical structures, position of a joint or finding out how tensed the muscles are, but also to guide movement and to treat soft tissues. At the beginning of the studies, many students find it challenging to work side by side with others, let alone to touch others in practical classes. During the studies they, however, get used to it and learn to use 'the eyes you have in your fingertips'. The teachers also work 'hands on' with the students. They demonstrate with their own hands how the task in question is carried out correctly and how it is supposed to feel like. This kind of teaching and learning approach requires trust and readiness to stretch one's limits from both parties – teachers and students.

The limits and attitudes of the students are tested in many kinds of situations during the physiotherapy studies. For some students working with severely disabled people may feel challenging at first; others have never encountered elderly people who are very sick. Professional growth of the students can be enhanced substantially by experiences of success in for example developing and guiding wheelchair dance with a group of disabled clients or conducting measurements of functioning in elderly people's residential house. Year by year more responsibility is given to the students and the role of the teacher changes from teaching to coaching and to offering further challenges and giving feedback.

Professional growth is supported by tutoring

In physiotherapy education, professional growth is also supported by tutoring. The purpose is not only to follow how the studies proceed but also to reflect upon how one's own skills and knowledge have improved, what seems to be challenging at this point and what needs to be learned next. In addition, it is necessary to discuss what kind of placement would benefit the student best in the next clinical placement period regarding all the competencies which need to be achieved during the studies.

There are few differences in the professional content between the degree programmes in physiotherapy provided in Finnish and in English, but in the English programme internationalization and intercultural competence are emphasized

more. Bearing in mind that most of the students are not native speakers, studying physiotherapy in English in a multicultural environment is a challenge as such. However, the students learn quickly not only to tolerate but also to appreciate the different perspectives, values and ways of communication of students from other countries and cultures. Moreover, the students are encouraged to complete part of their clinical practice abroad through the international exchange programs, for example in the Nordic countries or elsewhere in Europe.

Especially at the beginning of the studies, a lot of attention is paid to group dynamics in tutoring sessions, because we have noticed that a good and relaxed atmosphere in the group supports good learning outcomes. It has been said that “a good physiotherapist needs the brains of a scientist, hands of an artist and heart of a humanist”. This is the goal we aim at in SAMK.

4 It is wonderful to teach the students new skills!

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Mari Törne and Johanna Vähä-Jaakkola have both graduated from the English Degree Programme in Physiotherapy in SAMK. After some years of work experience as a physiotherapist, Mari continued her studies in the University of Jyväskylä and graduated as Master of Science with Sports Medicine as her major subject. Johanna in turn, completed her master-level studies in the University of Tampere with Health Care Administration as her major. Mari started in SAMK as a project worker but has now worked as a teacher for about five years, whereas Johanna has about four years' experience as a teacher. I interviewed these two young teachers about how they had experienced the transition from alumni to teachers.

"My group was the second international physiotherapy group in SAMK, so we were a kind of a test group", Mari tells. "It has been great to see how much the degree programme has developed during the past 20 years." Both Mari and Johanna believe that their own experiences as students in SAMK benefit their work as a teacher and tutor. "It is not that long ago we were students, so it is easy to understand how the students feel in different situations", Johanna says. "As a former student I can easily identify with their process of professional growth", Mari continues. "For example when the third year students make preparations for a long exchange period abroad, I remember how worried I was about how and if I will cope. I also like to share my own experiences about the clinical practice abroad with the students and discuss what to expect".

Because of their own experiences Mari and Johanna understand how demanding studying in English can be for the non-native speakers, especially at the beginning of the studies. Many students speak English fluently and are good at small talk but studying new difficult subjects like anatomy or physiology or writing assignments in English is completely different. For example, there is often no time to explain medical terminology in detail during the classes, and the students have to study a lot independently. With time, however, the professional vocabulary grows and it becomes easier to follow the lectures and read the materials and research papers.

“Studying in a group with many nationalities and cultural backgrounds is demanding as such. This can be seen in the ways students from different countries have learned to study as well as in the way they communicate and work together and how they see the teacher’s role”, Mari and Johanna explain. Even in this respect, the young teachers acknowledge the value of their own experience of studying in a multicultural group.

Johanna continues: ”In tutor education we discussed the question of who can help the students in their problems. My own experiences as a student guide my work as a teacher even today. It is good to have at least one teacher who is easily approachable, when a student needs help in a difficult situation either in his or her studies or otherwise. It does not matter, whether it is your teacher tutor or some other teacher, since the first step for asking for help has been taken and many problems can be overcome. As a teacher tutor I think it is a strength that my own years as a student are that far away, because it is easy to see things from the students’ vantage point. One thing I try to emphasize now is that you do not need to be “typical physiotherapist”. This education has so many aspects that it can take you to very different jobs depending on your focus and the combination of studies. “

“In many ways it was easy to start as a teacher in SAMK”, Mari says. “All the colleagues were familiar to me as well as the facilities. I felt safe to ask for help from the others. However, in the beginning it was sometimes rather confusing to participate in the discussions in the coffee room. At first, I was surprised that the teachers were so relaxed and the atmosphere was characterized by humor, sometimes even black humor. Soon I realized that the teachers carry a certain “teacher’s role” and have authority in the classroom, and it is necessary to relax during the breaks.” “As a student you don’t actually realize that the teachers also have life outside the school, such as family, elderly parents, other duties, hobbies and so on”, Johanna continues, “but as a colleague you learn to see the whole person little by little”.

Both Mari and Johanna had dreamed of becoming a teacher already during their physiotherapy studies. ”I often thought how nice it would be to stand on the other side of the teacher’s desk. It is wonderful to be able to teach the students new skills!” says Johanna.

5 Small-scale projects integrated to physiotherapy studies promoting adapted physical activity

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Introduction

According to official policy, education in universities of applied sciences (UAS) should be carried out in close contact with working life. Moreover, it is supposed to enhance regional development as well as collaborate with various actors in the region. This article describes how higher education can do its share in the regional development in the area of physical activity promotion.

Physiotherapists as a profession are committed to physical activity promotion worldwide (World Confederation for Physical Therapy). Moreover, one of their particular competencies is promotion of physical activity among persons with extra need for support in their participation – usually referred to as the field of adapted physical activity (APA). Especially, the courses in APA provide opportunities to promote these skills during the training of physiotherapists. However, several other courses in physiotherapy education form a strong basis for APA.

APA in SAMK physiotherapy education

Satakunta University of Applied Sciences (SAMK) in Pori was selected as a case for study presented here. The present curriculum in the English Degree Programme in physiotherapy comprises 15 credits of "Instructing and adapting physical activity". Out of these credits, five credits relate to APA directly.

During their studies in APA, students learn how to plan and instruct physical activity with several age groups using the principles of didactics and motor learning. The basics of APA, familiarization to APA service provision and adaptations of various modes of physical activities and small-scale projects are implemented during the courses in APA. Teaching is committed to the teaching styles created by Mosston & Ashworth (2008). Particularly the use of reciprocal teaching style offers multiple opportunities for close physical and social contact with the client, not to speak of the opportunities for continuous feedback to the client. (Javanainen-Levonen & Kärki 2007.)

Small-scale projects integrated to APA-courses

Bachelor students in physiotherapy create small-scale pedagogical projects linked with APA courses in the final phase of their studies. These projects build on the student's former knowledge and experience in APA and on personal interests of one student or a student group. The projects are mostly created by the students themselves, but they may also be carried out in joint regional, national or international projects. A project plan has to be accepted by the lecturer. Dissemination of the project implementation is presented to the classmates and the lecturer.

Two case examples of small-scale projects will be presented briefly. The aim of the first case was to promote new ways for the clients to be physically active in the local residential house for persons with physical disabilities. Three students in the Finnish physiotherapy programme carried out the collaborative project. First of all, the topics included presentation of the ideas in indoor curling and indoor golf. The aim was to market the project for the clients and professionals working in the residential house and thus to motivate participation in the project. The modifications of the activities were exemplified and thought over with the clients themselves. Later on, two sessions were run with eight clients and 2–3 professionals. Throughout the project, the residential house got knowledge of new equipment and new activities. The clients found out about new ways to participate in physical activity. Moreover, the students collected data dealing with local service delivery in physical activity close to the residential house.

The second case demonstrates a project, which was carried out by one student. The student participated in a winter activity day in Tampere. Her task was to find out how the day was planned and implemented. Afterwards she was supposed to present all the information to her classmates. Nine various associations collaborated in organizing the event. More than hundred persons visited the activity day. Several winter activities were presented. The focus was on the possibility to try out and get more knowledge about assistive devices in physical activity.

In addition to projects related to teaching, SAMK has participated in several major projects, even on European level (Javanainen-Levonen 2010). That kinds of projects are not included in the analysis of this article.

The aim of the study was to demonstrate, how these small-scale projects can promote physical activity among persons with extra needs for support in their participation. The results show great variation in many respects. Results demonstrate the variety in co-operational partners, in the field of APA, in the target group (age group and diagnosis), and in the location of the project. Generally, the results reflect how UAS educational principles come true within the surrounding community.

Method

Purposive sampling was carried out in SAMK physiotherapy education in 2010–2011. The data consisted of written documents prepared by students during each project (project plan, presentation). Quantitative content analysis of documents was carried out by simple counting of frequencies. Categorization was based on a former research dealing with a bachelor's thesis completed by a former SAMK student (Mäkitalo 2011).

Results

Altogether 39 projects were carried out by 77 students. Fifty-two of them were students in the Finnish degree programme, and 25 students in the English degree programme. In all, 28 project documents were in Finnish and 11 project documents in English.

Social services and health care agencies were the collaborative partners in 54 per cent of the cases. The projects focused mostly on recreation and rehabilitation. Furthermore, a few projects dealt with competitive sports and physical education in schools. Some of the projects covered multiple fields. The number and nature of the collaborative projects in various fields of APA are demonstrated in Figure 1.

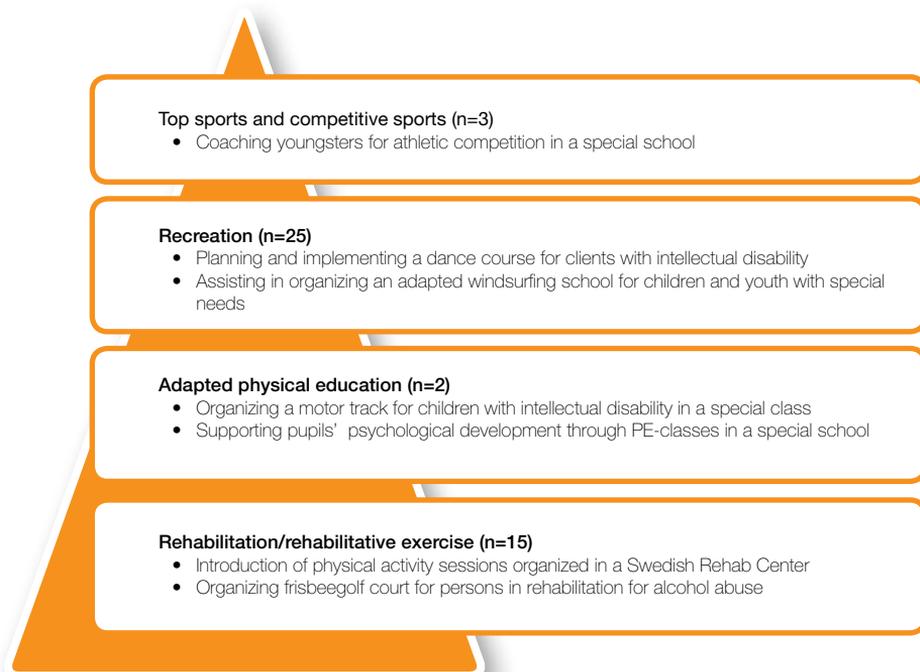


Figure 1. Examples of pedagogical projects related to various fields of APA

Promotion of physical activity of the clients was the aim of 58 per cent of the projects. However, five projects primarily aimed at promoting awareness and the skills of professionals with less education in APA. The projects dealt with physical activity of various age groups: adults (20 projects), children (n=17), and the elderly (n=6). Multiple age groups were covered as well. Clients had most often intellectual disability or physical impairment. Moreover, alcohol abuse, unemployment and social problems were dealt with.

In all, 30 projects were carried out in the Satakunta region of Finland, and six in Finnish municipalities outside the Satakunta region. In three projects collaboration took place at national level and in three at international level (Figure 2).

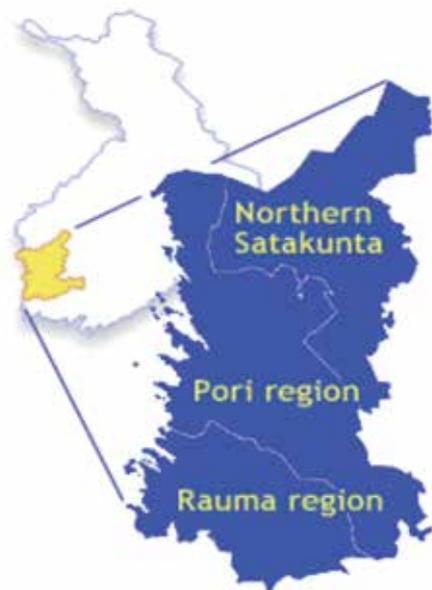


Figure 2. The region for most of the student-led projects in 2010–2011 (N=30/39)

Conclusions

Even small-scale practical projects carried out as integrated parts of courses seem to offer a tool to collaborate in a variety of ways with regional service providers. There seem to be huge options for higher education to develop participation in APA in several populations and in a variety of settings in the community.

Based on the findings, the use of practical projects is highly recommended in the education of future APA professionals – such as physiotherapists – in order to simultaneously enhance collaboration and to create the quality and new service delivery in APA. This seems to be an interesting way to carry out training in accordance with UAS policy as well.

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6 Twin-stick exercising – an innovation created during physiotherapy studies spreads out internationally

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An innovative idea born during physiotherapy studies in SAMK

Participation in physical activity can be enhanced by creating new, motivational methods. Exercising in modern training classes is mostly carried out individually even though participation takes place in a group. The innovative idea of Twin-Stick Exercising provides a new form of exercise in the field of physical activity. Twin-stick exercising focuses on working in pairs and relies on social interaction. The basic concept can be implemented in recreational settings or in rehabilitative, one-to-one instructional settings.

The idea of Twin-Stick Exercising was born in the year 2010 during the first author's physiotherapy studies at Satakunta University of Applied Sciences (SAMK) in Pori, Finland. The particular course was Didactics of Physical Education led by senior lecturer Tarja Javanainen-Levonen. The starting point for the innovative idea of Twin-Stick Exercising and student-teacher cooperation took place, when some stick exercises were improvised within the course. Later in the same course, group choreography was planned and run by Mäkelä as a warm-up in a physical activity session carried out with a client group consisting of working-aged adults.

Working out with a stick – individually or in a group activity – has been a traditional way of exercising especially in Finnish male gymnastics more than a hundred years (Suomela 1933). Thereafter, the use of sticks increased in e.g. posture exercising and stretching (Arvonen 2006; Kantaneva & Kasurinen 2001). Twin-Stick Exercising programme presents an innovative way to utilize two sticks in exercising or even dancing and demonstrates a new way of enjoying rhythm and facilitating movement together with a partner.

Idea refined to Bachelor's thesis

Later on, more profound analyses of the innovation led to further development of Twin-Stick Exercising as a topic of a Bachelor's thesis (Mäkelä 2012). The innovation was explored from historical, didactic, physiotherapeutic, and dance perspectives. The didactic principles of Twin-Stick Exercising mainly adhere to the reciprocal teaching style described by Mosston and Ashworth (2008) and emphasize development of the human attributes through the developmental channels (e.g., psychomotor, cognitive, social). The physiotherapeutic reasoning is founded on movement planes, joint mobility and reciprocal movement (Sandström & Ahonen, 2011; Tortora & Derricson, 2009). Lastly, connections to dance are reflected to established dance forms, rhythm and elements of dance.

International dissemination

Twin-Stick Exercising was shared in public for the first time in the European Congress of Adapted Physical Activity (EUCAPA 2012) in Killarney, Ireland. The abstract was accepted as an innovative practical workshop (Mäkelä & Javanainen-Levonen, 2012). Among the participants, two colleagues representing special education from Denmark participated actively in the workshop. Even during earlier conferences, they had shown great enthusiasm to the Finnish way of running physical activities. The workshop was recorded by the international Inclusion Club website practitioner Ken Black with a follow-up interview conducted with the creator of the innovation. The video clip of Twin-Stick Exercising is available on the website of the Inclusion Club, which enables worldwide dissemination (Website of The Inclusion Club 2014).

A survey was carried out among the EUCAPA 2012 workshop participants. The participants' experiences and considerations related to the pedagogical and practical application and usability of this exercise method in APA were evaluated. Initially, the data consisted of instant evaluative discussion after the workshop with all preregistered (N=19) participants and some additional observers. Secondly, a post-conference e-mail survey was carried out for workshop participants. In all, ten participants took part in this phase. Qualitative content analysis was carried out on the verbal and written feedback. Additionally, post-conference feedback from international and national level APA-networks was examined.

The results of this small-scale research indicated that workshop participants considered Twin-Stick Exercising as an enjoyable and user-friendly physical activity that could be easily adapted for a range of persons requiring extra support in physical activity (Figure 1). This included people with visual, hearing and motor coordination impairment, autism, neurological disorder and intellectual disability. Comments from the international network focused on the great potential of Twin-Stick Exercising in a variety of contexts, its effectiveness and use of minimal equipment. (Website of The Inclusion Club 2014).

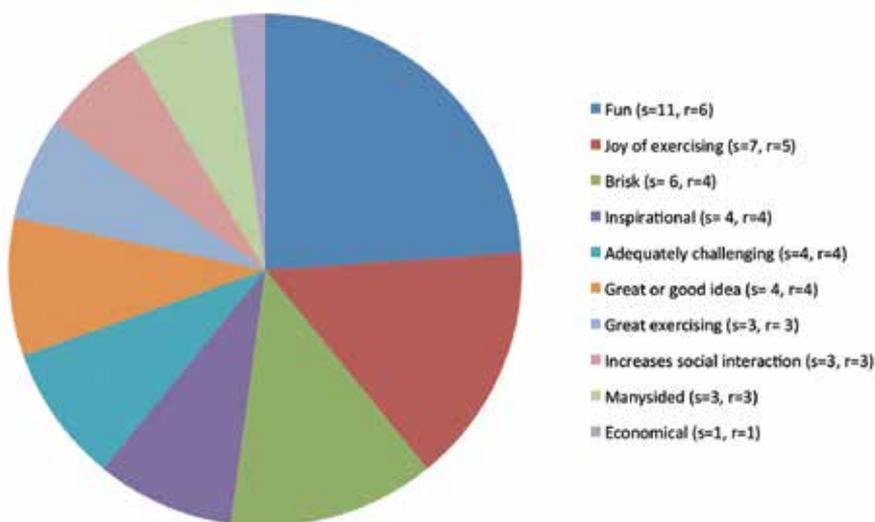


Figure 1. Workshop participants' experiences of Twin-Stick Exercising demonstration (N=10 participants, s= number of statements, r=number of respondents)

In 2013, the impact of the international launch of Twin-Stick Exercising programme was presented in the International Symposium of Adapted Physical Activity (ISAPA) in Istanbul, Turkey. Belgian colleague, Karin Bultiau, participated in the oral presentation among the others (Javanainen-Levonen, Mäkelä & Black, 2013).

After the conferences, the idea of Twin-Stick Exercising was introduced on national level as well. The Finnish SoveLi-newsletter for adapted physical activity (Pennanen, 2012), Finnish Journal of Physiotherapy (Javanainen-Levonen, 2012) and SAMK's Agora magazine (Elo, 2013) referred to the Twin-Stick innovation.

Pilots implemented by colleagues in Belgium and Denmark

International conferences and networking have spread out the Twin-Stick Exercising programme, and thereby enabled its implementations. In an annual inclusive sports camp, organized by the University College Brussels, Belgium,

bachelor students of the Teacher Training Physical Education instructed a practical session in Twin-Stick Exercising. The responsible teacher was Karin Bultiauw. The clients of the session consisted of persons with visual or hearing impairment and second year social care students. In this implementation, a person with an impairment and a student formed a pair. The clients evaluated this lesson positively for its creativity in material and movements, the excellent idea of inclusion and the delightful atmosphere during the session.

Another implementation took place in the Center for Deaf-Blindness and Hearing Loss in Aalborg, Denmark. The co-authors, special education teachers Mads Kopperholdt and Anders Rundh implemented Twin-Stick Exercising during their APA classes. Participants were pupils with different conditions, including deafness or deaf-blindness. The goals of the sessions were to improve the pupils' motor skills and social interaction through interacting without constant presence of the teacher. Exercises were modified to support using the arms and improve balance while walking, as well as keeping the rhythm. Twin-Stick Exercising was carried out more than ten times once a week. Interestingly, some of the sessions took place in a park. According to the teachers, pupils' physical endurance and coordination improved while walking during the course. Furthermore, it was impressive how quickly pupils learned the idea of the exercising method and found the rhythm. Feedback from the pupils described Twin-Stick Exercising as funny and intense training.

Conclusions

This innovation offered the first author a chance to combine her skills in dance, group instruction and physiotherapy. In this way new competences were developed. The thesis on Twin-Stick Exercising focused on persons without any specific problems in their abilities or skills in physical activity. Naturally, the thesis discussed several options to make use of the innovation in the field of adapted physical activity. Therefore, the innovation was taken to the international conferences in this field.

Consequently, the innovation created and disseminated during the studies received international attention and led to networking and implementations in professional contexts. These contexts included persons with extra need for support in their physical activity. Both partner institutions with the experiences presented in this article are eager to continue working with this idea.

The education run in English, including the Bachelor's thesis, made immediate international publicity easier. Furthermore, comprehensive and long-span student-teacher cooperation has enabled the continuity of the project with international colleagues even after the studies.

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7 Ergonomics in patient transfers

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Background

Work is experienced more commonly physically loading in the fields of social and health care than in other fields. 85% of accidents in nursing happen in patient transfers (Enqvist 1997, Smedley et al 2003, 864–869).

Poor working postures, heavy lifting and haste were experienced more commonly as impeding loading factors among social and health care services. Most loads over 25 kg were among the field of social and health care. The patient's sudden movement is a common cause for accidents. The patient can either lose balance or resist transfer. The other reasons for poor ergonomics are lack of time and personnel. The space where the transfer is done may also be poorly organized and too small. The risk factors include poor transferring technique, body awareness and knowledge about the patient's functional capacity. Also misunderstandings occur between the health care staff and patient. (Dahl & Grenman, 2006, Tamminen-Peter et al., 2007, Tamminen-Peter & Wickström, 2013.)

Principles of safe patient transfer

One of the principles presented in more detail later in this article is to make the transferred patient as active as possible. Before making a patient active in a transfer, the functional ability of the patient must be evaluated. One tool used is a care thermometer, which is an evidence-based tool to assess risk within safe patient handling and to identify and apply strategies and solutions in order to reduce the risk of musculoskeletal injuries. (Care thermometer n.d.)

To make a safe patient transfer, the health care staff must be aware of the normal movement patterns to be able to facilitate the patient correctly. The following normal movement patterns should be known: on supine transfers up and

sideways, from supine turning to the side-lying, from lying to sit and back, from sitting, transfer to the edge of the chair and from sitting to upright standing and back. If a health care professional does not know these, he or she may facilitate in a wrong way or use inappropriate grips which can cause for example the patient to behave aggressively. (Tamminen-Peter et al, 2013)

In the implementation we go through the principles in patient assistance. The main principles are as follows:

- Avoid lifting and do the transfer by sliding the object on the surface. You should have soft and gliding grips and try to use minimal muscle strength. The movements should be calm and harmonic. The patient must be told what you will do by giving clear instructions: “pull” or “push”.
- The bed can be used as a support.
- Let and encourage the patient to be as active as possible and let the patient start the movement, then follow him or her.
- Give the patient enough time to do the movements.
- It is forbidden to lift under the arms or from trousers.

As to the person assisting in the transfer, some things should be considered. One must be aware of the balance at the beginning of a movement and during the movement. It is important to be near the patient or object and in a straight position if possible. Change the working position as often as possible and let the body have “micro breaks” to be able to recover. Weight should be divided equally on both legs if possible. The key in transfer is weight shift.

Visual, verbal and manual guidance can be used. Very often all these guidance techniques are needed. It is essential to have active interaction with the patient to gain trust. Utilizing the resources and movement ability of the patient reduces loading, so the patient should be encouraged to be as active as possible.

Even though we encourage going as close to the patient as possible, an important thing to remember is that by being close to someone you enter the private space of the patient. Make sure the situation is comfortable for the patient and he or she knows what will happen. The way of touching is also essential. There is a huge difference between a light touch and a rough touch and having cold hands or warm hands.

To decrease the loading, assistive aids can also be used. We usually introduce assistive aids which help sliding, e.g. like sliding boards and roll boards. We also have assistive aids that give a better grip to health care personal, e.g. a gait belt or fleximove. Patient lifters can also be used.

In doing patient transfers it is important to use lower extremity muscles, body weight and kinetic energy. It is important to have a good ergonomics in light tasks, too. When correct techniques are learnt and repeated actively, they will very become automatic.

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8 Somebody®: supporting the self-concept and body awareness

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Background

SomeBody® is a new functional model, which we have developed for education, social work and health care. It is an interactive method which can be used in preventive work and rehabilitation. SomeBody focuses on supporting the client's body awareness and self awareness skills. In SomeBody the methods of psychophysical physiotherapy, like physical activity, breathing, relaxation, body image exercises, are combined with the methods of dialogic, psychosocial counselling.

Aims and implementation of the SomeBody -course

We trained students in physiotherapy and students in social services on the basis of the SomeBody model in the course *Body Awareness Model SomeBody* (4 cr) in autumn 2014. The course was planned and implemented in multidisciplinary co-operation with teachers. In the planning process, we used the strengths and expertise of physiotherapy education in body and movement, and the strengths and expertise of social studies in social welfare and interactive psychosocial counselling.

In the development of the model, different professional perspectives have been combined in a novel way. As a result, we hope that the future professionals will be able to meet the clients' increasingly challenging and holistic needs. To reach this goal, the students of the two programmes worked together in order to be able to benefit from each other's strengths and perspectives. The group consisted of 20 physiotherapy students and 16 social services students.

The contents of the course emphasise the methods of psychosocial counselling and psychophysical physiotherapy, in particular, body awareness, self-concept,

breathing, relaxation and social interaction. The main focus was on how body awareness supports the client's self-knowledge and promotes physical, mental and social functions and helps in creating a sound self-concept. During the course the student develops skills, which he or she can use in promoting health and well-being. The course had the following learning goals:

Having completed the course, the student is able to

- describe, explain, specify and analyse the components of physical, mental and social functional capacity and their significance in supporting well-being in individuals and groups
- describe, explain, specify and analyse how emotions and thoughts are connected to bodily experiences, movement, social interaction and participation
- describe, explain, specify and analyse the most important methods in psychophysical counselling
- describe, explain, specify and analyse the most important methods in dialogic, psychosocial counselling.

The course was carried out by using functional experiential methods. The main idea of the course was to provide the students with a personal experience of the application the model.

A practical workshop based on Somebody®- approach

We presented Somebody in Physiotherapy Anniversary Seminar on 13th October 2014. The presentation was carried out according to the main idea, i.e. through action. The following is an example of the progress of a class.

Topic: Get familiar with others and emotions

- 1) Getting to know each other: An agreed area, where everybody walks. At first, you must not glance around, look at or touch the others, then glance at others, a slight nod, greeting, greeting and presentations with personal information, for example the second name, mother's maiden name. The aim of the exercise is to observe the personal space, social interaction and posture.
- 2) Body scan: From toes up. The aim is to concentrate on one's own body, how it feels and what it feels.
- 3) Walking: First walking around the room and then walking and feeling different emotions, joy, sadness, hate and shame. At the same time, the participants pay attention to breathing and sensations in the body. The aim is to feel the different emotions in the body and to realise how they change the posture and breathing.

- 4) Walking with flexion: Strong flexion in almost all parts of the body.
- 5) Feelings and thoughts arising from the exercises.
Participation in small groups. Choose from the emotion cards the feelings that were most intense and share them briefly with others. The feelings the group members have taken up will then be contemplated in the body. The group has one picture of a body which has been drawn on paper. Each group member thinks about the selected feelings, where and how they were felt in the body. When they tell about the feelings, they write the name of the feeling with a chosen colour on that part of the body where it was felt. For example, you can write the word shame in purple on the chest. After the feelings have been placed in the picture, the feelings and the sensations in the body are discussed in the group.
- 6) Four areas of the self-image:
A physical self-image is selected from the four alternatives. Everybody tries to find out the three most important thoughts they have about the capability and attractiveness of their own body (individual work). At home, the students connect these thoughts with a feeling.
- 7) Finally, thoughts are shared about the exercises.

The starting point in the development of the SomeBody model has been the idea that future professionals must be better prepared to meet their clients. In addition, physiotherapists should have an ability to take a holistic approach to the client in terms of the lived body and not the body as an object. The future professionals in social services should have more tools and better competence in taking the bodily and functional possibilities into consideration in interactive counselling. In particular, it is important that both professional groups develop skills in promoting body awareness and self-awareness skills to make it possible for clients to become aware of their body and the resulting interaction with others. (Herrala, Karhola & Sandström, 2008.)

Awareness methods have recently been used, for example, in treatment of stress, depression and pain. Brain research emphasises the dialogue between the physiological state and the mental state in promoting health. (Kortelainen, Saari & Väänänen, 2014; Sandström, 2010). Even psychophysical physiotherapy emphasises the connection between the mind and the body. The interaction between the thoughts, mind and body has also been stressed in psychosocial counselling based on cognitive perspectives.

Conclusions

In conclusion, the mind, body, thoughts, emotions and health have a significant relationship to each other. SomeBody was developed to renew professional

education given to students in physiotherapy and in social services. It brings forward the individual's relationship with others and to society. These aspects have not been considered adequately in the current practices and research on awareness skills. In *SomeBody* the awareness and mindfulness skills are joined with social roles and social functional capacity. As a result, the individual approach is extended and guidance of functional capacity is placed in a wider social context. (Gyllensten, Skär, Miller & Gard, 2010).

The model can be used in preventive and rehabilitation work and it is suitable for professionals working in day care centres, educational institutions, children's homes, mental health and substance abuse settings and in leisure activities. It provides a new perspective and tools for the counselling professionals.

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9 Challenges in physiotherapy of low back pain

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Background

Within a Musculoskeletal setting Physiotherapists are commonly 'first contact' clinicians. It is our duty of care to refer patients to an appropriate specialist in a timely manner if the presenting condition is not musculoskeletal in origin. Most serious pathologies are actually very rare in the general population. The key challenge for practitioners managing patients presenting to musculoskeletal services is that there are such a wide variety of causes of pain. The pathological mechanisms responsible for generating nociceptive signals may, particularly in the early stages of a non-musculoskeletal condition, present a confusing and indistinct clinical picture. The difficulties associated with early identification of serious causes of back pain are compounded by the sheer number of people suffering from low back pain and the variety and vagueness of symptoms articulated by the patients. In addition, it is also important to recognize that patients suffering from complex chronic pain states are not immune to other forms of pathology, and that musculoskeletal disorders can often coexist with other pathologies.

Metastatic Spinal Cord Compression (MSCC)

There are approximately 4000 cases of metastatic spinal cord compression (MSCC) in England and Wales per year (NICE 2008). MSCC is a well-recognized complication of cancer (most commonly breast-, prostate- or lung cancer), and is usually an oncological emergency. In suspected cases an MRI (Magnetic Resonance Imaging) needs to be carried out within 24 hours (NICE 2008). The condition occurs when there is pathological vertebral body collapse or direct tumor growth causing compression of the spinal cord leading to irreversible neurological damage (Levack et al., 2002). In addition to the agonizing pain and spinal instability that the condition can cause, compression on the spinal cord can also lead to paraplegia or quadriplegia and double incontinence. If untreated due to delays in diagnosis, compression on the spinal cord from the tumor leads to paraplegia and double incontinence. At diagnosis 82% of patients with MSCC are unable to walk or only able to do so with help (Levack et al., 2002). MSCC

patients present on average within three weeks of the onset of back pain and importantly 25% of MSCC cases initially present with no primary diagnosis or signs of cancer (Levack et al., 2002).

Cauda Equina Syndrome (CES)

CES occurs as a consequence of the loss of function of two or more of the eighteen nerve roots which comprise the cauda equina (Woolsley & Martin, 2003). Surprisingly there are no broadly accepted definitive diagnostic criteria for CES, to-date there are 17 different definitions of CES recorded. Although serious, CES is a rare condition estimated to occur in just 2% of all herniated discs. CES is considered as a potential emergency within orthopedics as one in five patients will have a poor long term outcome. (Fraser, Roberts & Murphy, 2009) Initial signs and symptoms of CES are often subtle and vague, varying in intensity and evolution (Ma, Wu, Jia, Yuan, Shi & Shi, 2009). CES is a highly litigious condition with damages on average at £300 000 (Markham, 2004) therefore CES questions and the patient's response should be clearly documented in the patients physiotherapy records.

The following table includes signs and symptoms from the following three conditions: MSCC, CES and Multiple Sclerosis.

Early warning signs of MSCC (undiagnosed primary malignancy)=	Cauda equine syndrome warning signs	Multiple Sclerosis MS
Referred pain that is multisegmental or band-like	Loss of feeling/ pins and needles between thighs or genitals	L'hermittes sign: an "electric shock" sensation that passes down the back into the arms and legs when you move or flex the neck.
Escalating pain which is poorly responsive to treatment	Numbness around back passage or buttocks	Global weakness
Different character or site to previous symptoms	Increasing difficulty when you try to urinate or to control or stop the flow of urine	Visual disturbance
Funny feelings, odd sensations or heavy legs	Loss of sensation when you urinate	
Lying flat increases pain	Leaking urine	
Agonizing pain causing anguish and despair	Not knowing when the bladder is either full or empty	
Gait disturbance, unsteadiness especially on stairs	Inability to stop a bowel movement or leaking	
Sleep grossly disturbed due to pain being worse at night	Loss of sensation when you pass a bowel motion	
	Change in ability to achieve an erection or to ejaculate	
REDFLAGS! > oncological emergency, > needs MRI within 24 hours	> Seek emergency help within 12 to 24 hours!	

Table 1. Signs and symptoms that need attention

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10 A sport specific approach to prevent adductor-related groin pain: assessment and exercise

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Background

Groin injuries are very common in sports. Especially in sports like ice hockey and soccer, the incidence is high. For most groin injuries with acute onset, prognosis is good, with a time till return to sports within three weeks. For chronic cases (i.e. duration > 6 weeks), or groin pain with non-traumatic onset, prognosis is poorer. Most of these patients are referred to physiotherapy.

The most common way to identify subgroups in athletes with groin pain is based on pain provocation test combined with palpation of a painful structure. Out of the combination of three clinical entities for groin pain described by Hölmich (2007), the most common injury type is related to the adductor muscle. Although this typology gives some indications about the anatomical structures involved, it does not give the physiotherapist any information about the actual cause of the problem. It is a big challenge to identify variables that might be associated with the physical impairments in a causal relationship. Strength and range of motion are two variables that are generally assessed in physiotherapy.

In this practical education article, I will explain a functional approach for the prevention of groin injuries assessment and exercise. As an example for the functional approach, and the relevance of proper biomechanical analysis, I will use the soccer kick.

Biomechanics of the soccer kick

The soccer kick can be divided in five phases: 1) preparation, 2) backswing, 3) leg cocking, 4) acceleration and 5) follow-through. Research has shown that although the hip is extending and going into abduction up to the back swing phase and even in the cocking phase, the required torque in the hip to fulfill this sport-specific, high velocity movement is a hip flexion and adduction torque (Nunome, Asai, Ikegami & Sakurai, 2002).

Research on the changes in length of the adductor muscle during the soccer kick showed lengthening of the adductor up to the phase of leg cocking, indicating eccentric contraction (Charnock, Lewis, Garrett & Queen, 2009). In line with these findings, Brophy, Backus, Pansy, Lyman and Williams (2007) suggested that the highest risk for overload of the adductor region was found in the leg cocking phase of kicking, where electromyographic muscle activity is high, the contraction type is eccentric, and lengthening is reaching its peak.

Functional assessment and training of the adductor

Strength

Given the biomechanics of the soccer kick, it is required to do strength testing of the adductor muscle according to the following principles:

- Hip is placed in extension.
- Eccentric adduction strength is measured.

In case a deficit is found when comparing both limbs, exercises aimed at the eccentric component of the soccer kick are considered to be the most functional. An example of such an exercise is provided in photo 1.

Range of motion

Given the kinematics of the soccer kick, it is required to do abduction range of motion testing with the hip placed in extension. In case a deficit is found when comparing both limbs, exercises aimed at improving range of motion in regard to sport-specific soccer kick are considered to be the most functional. An example of such an exercise is provided in photo 2.



Photo 1. Strength exercise



Photo 2. Range of motion

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11 How to approach chronic widespread pain in physiotherapy

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Introduction

Chronic widespread pain (CWP) and chronic fatigue syndrome (CFS) are two overlapping conditions that may result in a substantial reduction in occupational, educational, social or personal activity level (Crooks, 2007; Van Cauwenbergh, De Kooning, Ickmans & Nijs, 2012). The most severe form of CWP is fibromyalgia which is characterized by fluctuating chronic pain in all quadrants of the body, muscular tenderness, sleeping disorders and daytime tiredness (Wolfe et al., 2010). Chronic fatigue syndrome (CFS) is a condition characterized by serious mental and physical fatigue combined with at least four of seven of the following minor symptoms: sore throat, new headache, tender lymph nodes, muscle pain, multiple joint pain, unrefreshing sleep, and postexertional malaise that lasts more than 24 hours (Carruthers et al., 2011).

The etiology and pathogenesis of CWP and CFS are not fully understood, but cumulating evidence suggests that central sensitization (i.e. hyper-responsiveness of the central nervous system) dominates the clinical picture of both CWP and CFS (Yunus, 2008; Nijs, Aelbrecht, Meeus, Van Oosterwijck, Zinzens & Clarys, 2011; Van Cauwenbergh et al., 2012). On the one hand, there is the altered sensory processing in the central nervous system that leads to increased activity of pain facilitatory pathways, temporal summation of the pain and decreased pain inhibition – in other words to substantial increase in experienced pain. On the other hand, repetitive musculoskeletal injuries and traumas may provide a sufficient amount of nociceptive barrage toward the central nervous system and thus, increase or perpetuate the symptoms. (Nijs, Mannerkorpi, Descheemaeker & Van Houdenhove, 2010.)

According to recent research, physiotherapy of individuals with CWP or CFS should be built on three equally important pillars, namely education, pacing and physical exercises.

Patient education

Patients with CWP or CFS find their symptoms emotionally distressing and difficult to understand, and they do not expect the medical treatments or therapy interventions to be effective. Moreover, inability to understand the experienced symptoms seems to increase anxiety, catastrophic thinking and desperation. (van Wilgen, van Ittersum, Kaptein & van Wijhe, 2008.) Education aims at reducing anxiety, increasing treatment compliance, enhancing self-efficacy, improving coping skills and learning how to draw attention away from the symptoms (Sarzi-Puttini, Buskila, Carabba, Doria & Atzeni, 2008).

Pacing

The patients with CWP or CFS are often tempted to be overactive on a “good day” which may lead to deterioration of the pain and fatigue symptoms on the following days. Pacing is an activity management strategy, in which the patients are encouraged to achieve an appropriate balance between rest and activity. Pacing takes into account the delayed recovery from exercise and the considerable fluctuations in symptom severity, which is typical to both patients with CWP and CFS. (Nijs et al., 2010.)

Successful pacing requires that the patient learns to set realistic activity goals on a daily basis and to regularly monitor and manipulate activity level in terms of intensity, duration and rest periods in order to avoid possible overexertion, which can result in worsening of the symptoms. Instead of avoiding all activities, they should be encouraged to perform different physical and intellectual tasks, starting from a tolerable level, and then to gradually increase the length and frequency of the tasks as the tolerance improves. (Van Cauwenbergh et al., 2012.)

Physical exercise

According to Nijs et al. (2010) exercise therapy of chronic pain patients may have several goals, depending on the patient's prominent symptoms, body functions, motivation, and preferences. They point out that a realistic goal for a patient with severe pain and disability is to increase the overall activity level and the tolerance to exercise, whereas a goal for a patient with milder symptoms might be to increase muscle strength (force-generating capacity) or cardiovascular fitness.

The benefits of physical exercises concerning patients with fibromyalgia are well established in several studies, but the evidence regarding patients with CFS remains insufficient due to the lack of uniformity in outcome measures and inclusion criteria of the studies, which makes it difficult – if not impossible – to compare the findings (Van Cauwenbergh, 2012; Nijs, et al., 2011).

The current evidence suggests that physical activity in daily life and exercising with mild to moderate intensity combined with education and activity management are useful in the physiotherapy of individuals with CWP or CFS. The physical exercises should be started with a low dose in regard to intensity and duration in order to avoid delayed onset of muscle soreness (DOMS) and excessive fatigue following the exercise sessions. The intensity and duration can be increased gradually, and may eventually reach same level as in exercise recommendations for healthy individuals. (Nijs, et al., 2011.)

Concluding remarks

Finally, it is noteworthy that the evidence supporting spinal manipulation, massage therapy, trigger point injections or use of transcutaneous nerve stimulation (TNS) in the treatment of chronic widespread pain patients is limited – if not lacking– although these modalities are commonly used as a part of physiotherapy. Furthermore, the researchers remind that treatments triggering more pain may serve as a physical stressor attacking the already deregulated stress response system, thereby initiating a vicious cycle. (Nijs, et al., 2011.) They emphasize that passive treatments should never be the core feature of the treatment, and it should be acknowledged that their use might confirm maladaptive illness beliefs and strengthen passive coping strategies.

In conclusion, in the physiotherapy of chronic pain, we must abandon the old saying “no pain, no gain” and replace it with “gain with no pain”.

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12 Chronic shoulder pain and central sensitization

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Introduction

Pain has become a huge problem in the modern society. Over 1,5 billion of people worldwide suffer from chronic pain and 3–4% of the global population suffers from neuropathic pain. (Website of the British Pain Society, UK 2008, Website of the American Academy of Pain Medicine, USA 2011.)

Pain is always subjective and is a response to what your brain considers as a dangerous situation. The severity of tissue damage is not explaining pain; many people report pain even though there is no tissue lesion. (Website of International Association for the Study of Pain, USA 2012). The third most common musculoskeletal disorder in the population is in shoulder joint (Luime et al., 2005).

Shoulder pain and central sensitization

Shoulder is one of the most challenging and complicated joints of the body because it has the greatest range of motion of any joint in the body and least amount of passive stability. One of the most common reasons for the unilateral shoulder problems is a shoulder impingement syndrome (SIS) (McClure & Karduna 2006, 369; Paavola, Remes & Paavolainen 2007). Earlier the shoulder impingement syndrome has been considered generally to be a clinical condition of mechanic origin. But recent studies show that in some of the cases there is no relation between the pain experienced by the patients and the greatness of the injury at subacromial space. The research findings point to the possibility that central sensitization (CS) is present in some patients with unilateral shoulder pain, including those with SIS (Hidalgo Lozano et al., 2010).

Central sensitization is defined as an “a in different pathologies amplification of neural signaling within the CNS that elicits pain hypersensitivity”. This means that

the brain is being informed wrongly about the level of danger in the tissues. It's present in different pathologies like inflammatory, neuropathic and dysfunctional disorders. (Costigan, Scholz & Woolf, 2009). Clinically central sensitization can be determined by the presence of hypersensitivity to peripheral stimuli and referred pain sensations (widespread hyperalgesia) at the affected and at the unaffected side (Albuquerque-Sendín, Camargo, Vieira & Salvini, 2012).

Different studies investigate changes in brain structure with chronic pain. In addition a combination of sensory and affective dimensions of pain has shown strong connection between the level of density changes and pain intensity and unpleasantness. For instance patients with chronic low back pain appear to have less brain cells in this part or at least less neuron-matter in than it is in healthy subjects. (Wand et al., 2011.)

Quite many recent studies support a role of CS to be present in at least some patients with unilateral shoulder pain, implying that some shoulder pain patients have altered central pain mechanisms advancing or even dominating the patient's clinical picture. Some of the major classification criteria like presence of diffuse pain distribution and hyperalgesia have recently been proposed for the classification of CS pain. (Nijs et al. 2014.)

In physiotherapy we need to remember that pain is complex. Emotions are always involved in the perception of pain. To understand the role of CS in clinical decision making we need to have proper assessment tools, we need to understand the connection between sensory cortex and motor cortex, we need to be aware of the role of emotions in pain behavior. In the treatment we need to notice motor effects, sensory effects and cognitive effects.

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Physiotherapy education in English in Satakunta University of Applied Sciences celebrated its 20th anniversary in October 2014. The Anniversary Seminar brought together current students and alumni, teachers, clinical tutors as well as partners and co-workers from Finland and abroad.

Through this publication we in physiotherapy education in SAMK wish to share the insights, theoretical knowledge and practical ideas that were presented in the seminar.

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