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Move Healthy

Intellectual Output 1 Report

Mapping Report





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MOVE HEALTHY PROJECT MAPPING REPORT WP1

➤ MOVE HEALTHY: Project - background and overall aim

One reason for non-participation in and drop-out from sports and physical activity participation is sports related injuries where especially knee and ankle injuries contribute to this problem. Therefore, the project **MOVE HEALTHY: Improving Health and Sustaining Participation of Youngsters in Sports around Europe** seeks to *develop free-of-charge education material to effectively support sport coaches and physical educators around Europe to prevent primary lower extremity injuries of the youngsters participating in their sport trainings and physical education (PE) classes.*

Therefore, MOVE HEALTHY seeks to develop exercise based routines to prevent sports and physical activity related injuries. The routines will be web-based including instruction videos. The routines will be based on the OPTIMAL motor learning theory and Self Determination Theory. It is intended that the consortium develops – by the process of co-creation with sport coaches and PE teachers – functional sports exercises that can be integrated in real world sport training and PE classes. With it, the project directly contributes to an improved sharing of good practices and develops innovative instruments in order to lower the risks of injuries and enhance sports participation in youngsters.

The objective is to improve the motor competence of the youngsters, as well as to attitudinal and behavioral changes of the sport coaches and PE teachers during their practice. **The ultimate goal of the MOVE HEALTHY project is that the youngsters can enjoy a lifelong, healthy sport participation.**

Unique MOVE HEALTHY selling points include that the injury prevention is taught through an implicit learning approach that aims at sustainable implementation and is therefore sought to be embedded into regular sport training and PE classes. The co-creation of the injury prevention routines will be developed and piloted for football and basketball, and for generic multi-sports PE classes at primary and secondary levels.

To realize this, the consortium that was selected to initiate this development process brings together a strong mix of stakeholders from different sport-political and cultural settings (Netherlands, Romania, Belgium, Denmark, Lithuania and United Kingdom) and from different project relevant sectors and backgrounds. Partner organizations include, both representatives from practice as well as from science, representing different structural orientation towards HEPA and injury prevention, with activities at micro (local), meso to macro (international) level; covering the areas of PE and sports coaching.

> AIM OF WP1 - MAPPING

The detailed work program that is planned for the implementation of the MOVE HEALTHY project activities is split into *ten work packages*, which – at a superior level – can be divided into three stages of equal importance: (A) Preparation, (B) Implementation, and (C) Sustainability; with the similar important processes related to Management, Monitoring, Evaluation and Valorization forming an integral part of the entire set-up and running alongside the full project period.

The main objective of this work package (WP1) is to look at what is available, what are the current barriers and what are practical needs related to programs to prevent primary injuries of youngster's participation in sport trainings and PE classes. This first working step is of great importance for the success of the project, due to (A) the complexity of HEPA and injury prevention, (B) the envisaged innovative and needs-based character of the educational approach and content, and (C) the diversity of stakeholders involved in the project who should work together in a process of co-creation.

> METHODS USED FOR DATA COLLECTION

In WP1 we aimed at identifying the relevant methods and concept by gathering information about existing barriers and good practices regarding lower extremity injury prevention from the field of PE, at primary and secondary levels, and sports coaching with a focus on basketball and football.

The instruments applied for the implementation of WP1 are *desk research* supported by a stakeholder *survey / in depth interviews*. In order to follow the project's practice-based problem-solving approach, the mapping includes *consultation of the end users* (sport coaches / PE Teachers) and the *beneficiaries* (pupils / young athletes).

At the same time, information's about *technical possibilities and restraints related with web based implementation* was collected – as regards the development of the educational videos and learning platform.

> MAPPING RESULTS SPORTS (basketball & football)

Focus groups findings used for the mapping in sports with related output are presented below:

❖ **Output A: results of focus group discussions with youngsters: basketball (NL, ROM,) and football (NL, ROM): 6 questions addressed in relation with interest on a platform and content:**

- ✓ There is no specific platform used by youth players. Internet or other sources with *clips and movies explaining WHAT you improve* with a certain exercise routines were suggested to be helpful.

- ✓ Website should be working as an app and be integrated on other platforms such as Instagram;
 - ✓ Movies would work and should present examples of exercises and explanation WHY to do the exercises, HOW to execute them correctly etc.
 - ✓ Simple exercises with fun components in relation to specific goals (e.g. who scores, who finishes first).
 - ✓ Would be interesting to use role model athletes.
- ❖ **Output B: results from focus group discussion Coach: basketball (LIT, ROM, UK, NL) and football (NL, ROM, LT): part I - 11 questions in relation to exercises and part II – 6 questions related to the platform:**
- ✓ **Part I Exercises:** Some exercises that were shown as example are already used by coaches. Most coaches in the focus groups felt they already incorporated preventative exercises into their coaching.
 - ✓ *More group action, more sport specific, less equipment.*
 - ✓ Reaction exercises / color cones, combination of jumping 2 legs and 1 leg, running backwards, are used during practices mainly *as warm up routine.*
 - ✓ **Part II Platform:** Coaches found the idea of a platform interesting. In order for the platform to be used, coaches expressed that it should provide information and guidance on sport specific preventative routines.
 - ✓ The most helpful tools suggested were videos with graphics that explain values of particular exercise (i.e. explain correct execution) and mistakes, recent scientific material on subject, ensure the possibility to interact with colleagues.
 - ✓ Specific exercises that can be used, age-specific exercises, tips & tricks regarding planning of the exercises.
- ❖ **Output C: Results of interviews with stakeholders and desk research regarding National injury prevention programs (NL, BEL, DEN, ROM)**
- ✓ In NL and BEL there is a specific injury prevention policy and in DEN the "National Olympic Committee and Sports Confederation of Denmark" developed courses that can be purchased by the different Danish sport federations. In ROM, sports federations are using the scientific findings from literature in different sports disciplines in cooperation with many sports governing associations.
 - ✓ For example NL – football - "There is a sports injury prevention policy within the Sports Medical Centre (SMC) - Health through Fitness to Performance." and specific program like "*Continental Warming Up*": a warm-up program developed by the Royal Dutch Soccer Association (KNVB). Another one is

“Strengthen your ankle” program of VeiligheidNL which was based on the 2BFIT study. However this is primarily designed for adults.

- ✓ In BEL, the "Get Fit 2 Sport" project is a good example of a multi-factorial injury prevention program with a focus on intrinsic prevention strategies and with attention to a behavioral approach that seeks to create autonomous motivation for sports injury prevention in both athletes and sports coaches.

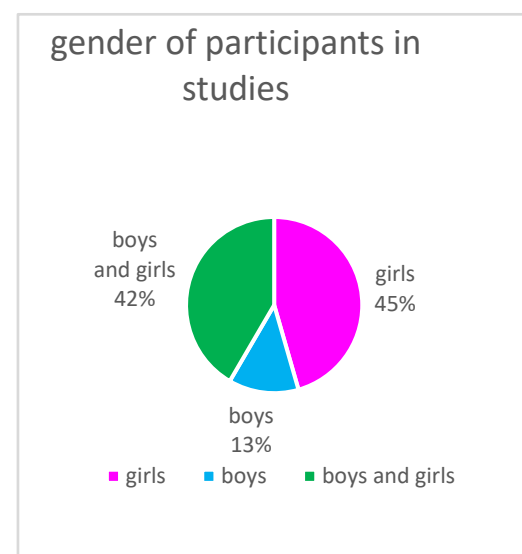
❖ **Output D: Interviewing stakeholders: (NL, DEN, BEL, ROM)**

- ✓ In DEN and BEL there are national programs, no specific injury prevention programs for soccer or basketball exists in NL and ROM.
- ✓ In DEN, E-learning courses made by the National Olympic Committee can be purchased by the sport federations “Sports injuries – No thank you” and “Sports injuries. What to do – What is your role?”
- ✓ In BEL (Flanders) Get Fit2 Sport is focusing on intrinsic prevention strategies for warming up, stretching, dynamic stabilization of the lower limbs, functional strength training, correct technical execution of, among other things, jump landing tasks, core stability training and cooling down. Additionally, a number of extrinsic prevention strategies exists depending on sport discipline and context; raising awareness of the extent and severity of the "sports injuries" problem and the usefulness of applying primary sports injury prevention; a behavioral approach that seeks to create autonomous motivation for sports injury prevention in both athletes and sports coaches.

❖ **Output E – Summary Scientific Literature.**

The systematic literature search resulted in a total of 24 papers on injury prevention exercise programs designed for either basketball or football, multiple sports.

- ✓ 19 out of the 24 studies on exercise based injury prevention programs were effective in reducing the number of injuries (in a controlled setting).
- ✓ Four out of 24 exercise programs were evaluated within youth under 13 years of age, and few studies focussed on boys only (see figure).
- ✓ 14 of the 24 exercise programs included devices, mostly a balance board.
- ✓ The majority of the studies were developed for use during warming-up, and the average duration of a typical set of exercises was 15 minutes.
- ✓ The programs usually included (a selection of) strengthening, flexibility, agility and balance exercises.



➤ **MAPPING RESULTS PE (primary & secondary)**

Focus groups findings used for the mapping in PE at primary and secondary level with related output are presented below:

❖ **Output A: focus group discussion with youngsters primary education: (NL, ROM, DEN) and youngsters secondary education (NL, BEL, ROM, DEN): 6 questions addressed in relation with interest on a platform and content:**

- ✓ **Primary education:** platform should include a link to the most used general platforms such as: YouTube, Snapchat, Instagram, Twitter, Facebook/Messenger, Spotify – they mostly use Instagram and YouTube, website must be fun and exercise routines attractive, include game based experience, video based.
- ✓ **Secondary education:** Pupils are more aware about injuries than children in primary education, but not focused on prevention. Those who have experience with injuries are more precautionary in terms of doing a proper warming up before the “actual” exercises.
- ✓ The platform can share different kind of information from the internet, and should be clear and easy to use. It is good to have a role model included in the presentations (this role model is different for different age-groups and sports).
- ✓ It is preferably an app / easy to use application and could be built in a way that some activities are primarily for girls and others for boys and/or age specific. Show it in PE lessons; let them download the app, rewards on use (points).

❖ **Output B: focus group discussion with teachers primary education (NL, ROM, LT) and secondary education (NL, BEL, ROM, LT, DEN) background information regarding injury prevention, *part I* - 11 questions in relation to exercises and *part II* – 6 questions related to the platform:**

- ✓ **Primary education:** Most of the teachers apply the injury prevention exercises during warm-up at the beginning of an activity. However, they are not focusing particularly on joint warming up and the reason for not doing that is due to lack of time. They admit that this could be improved.
- ✓ Injury prevention shouldn't – necessarily – be thought of as a stand-alone course but should be included as a topic related to the specific sport being taught in the PE lessons.

- ✓ **Part I Exercises:** Most of the teachers said that exercises presented are fun and they are already applied during the classes - exception is LIT where the teachers explain that absence of this type of exercises is due to the lack of equipment or knowledge. Time is the biggest barrier of the PE teachers.
- ✓ Advice is to use regular materials (not expensive), do the routine during warm-up and with a direct assessment of performance included in exercise.
- ✓ Easy accessible and implementable exercises and use of cheap and/or standard materials.
- ✓ **Part II Platform:** some teachers said that they would find it interesting to use a free app or website with video materials with dynamic content, movies and animation included.
- ✓ Use the platform as a pedagogical /educational tool in order to find info, treatment approaches, recommendations in small injuries.
- ✓ Manageable to go around the page; divided into different sub-categories (gymnastics, ball-games, dance/rhythm etc.); related to the course description of the PE classes; a search function is always a great idea.
- ✓ **Secondary education:** PE teachers are more focusing on a specific warming up exercise, taking into account the core of the lesson activities/sports.
- ✓ PE teachers are not working toward specialized movements for injury prevention, they often give exercises without realizing/paying attention to the functional anatomy behind: they often forget to look at the position of the spine for example.
- ✓ **Part I Exercises:** Should be focused on improving skills, on core stability, coordination, local muscle groups, falling, self-defense, stimulate physical fitness.
- ✓ Could be included in warm up or could be a part of the lesson. Questioned about the routines used, according to one teacher from DEN: *“Many of the exercises presented in the video are nice exercises – and it makes me think, that we actually do more than we thought we did. The exercises presented in the video could easily be examples of pre-exercises for e.g. the gymnastics we are teaching at our school. I really like this video and it makes me feel like doing all the activities right away. At the same time, it makes me think about what injury prevention actually is? If the video shown is the definition of injury prevention, then I am already doing it in my PE agenda.”*
- ✓ There should be information about the national regulations in official lesson manual in order to make it holistic. Otherwise it will depend on each individual teacher. Exercises should be fun and game-like.

- ✓ **Part II Platform:** Should preferably contain real demonstrations in high quality movies/videos, focused on the key point of the movement.
 - ✓ Well-structured: begin the website with attractive and relevant short video, easy clicks depending on the user, variations with simple material / accommodation, easy to prepare.
 - ✓ Apps so this can be used during PE lesson on tablets & mobile phones interactive on social media.
 - ✓ Communication with medical doctor (& physiotherapy), making a link with a specified medical certificate → individual training program depending on the injury.
- ❖ **Output C: National injury prevention programs (NL, BEL, ROM, DEN)**
- ✓ There are specific national injury programs in NL and BEL.
 - ✓ The prevention of physical and social safety is implicitly included in the activities in NL and BEL. Within the Physical Education in primary education it is guaranteed through the 12 learning lines, and this is how it works in practice when there are teachers in the classroom. The Ministry of Health, Welfare and Sport has commissioned a coherent program of sports injury prevention (NL).
 - ✓ Stimulating a sustainable attitude to movement and injury-free exercises within the framework of (inter)national guidelines, in addition to the technical and sport development. The Flemish Association for Physical Education Teachers (BVLO) promotes and organizes the training/info sessions of "**Get Fit 2 Sport**" (BEL-Flanders).
- ❖ **Output D: Interviewing stakeholders (NL, DEN, BEL)**
- ✓ Only in BEL-Flanders we could identify a national injury prevention program with focus on PE. Get2Fit description can be found in "Output D: Interviewing stakeholders".

❖ **Output E – Summary Scientific Literature.**

The systematic literature search resulted in three studies that focused on exercise programs to reduce injuries during PE.

- ✓ One study focused on primary school children, two on secondary school children.
- ✓ Two of the 3 exercise programs were effective in reducing the number of injuries. One using a homebased balance training, the other using a combination of neuromuscular training exercises and strength/balance exercises

❖ **Conclusions**

In order to develop IO1, a mapping process was conducted in all partner countries. We obtain important information about existing injury prevention programs and identified the wishes of both the end-users (coaches and teachers) as well as the target group (youngsters) from primary and secondary levels PE, basketball and soccer. Furthermore, the scientific literature was studied to identify current injury prevention initiatives in youngsters.

The results of the mapping procedure were discussed among the MOVE healthy partners, and main take home messages were formulated that will be used to guide the alignment step of the MOVE healthy project:

For SPORT (basketball and football):

- ✓ Sports approaches should be focused on quality of specific movement and answer to the questions *why (is this injury preventative)? how (is this injury preventative)? and what (to do to make it (is this injury preventative))?* in order to understand the difference in doing different skills and actions.
- ✓ Exercise routines should be focused on performance – exercises make you a better player - and not just about the injury prevention. .
- ✓ It is necessary to use existing exercises – giving them an injury prevention twist and add advice on (in)correct execution of exercise routines. Routines should be in game context, using balls, team exercises, sports specific, fun and challenging.

For Physical Education (primary and secondary):

- ✓ Enhance motivation and to find proper ways in order to motivate youngsters. Teachers need to overcome the barriers they have in relation to a reduced amount of time, requirements in structure and content from PE curriculum in order to introduce in the lessons exercises with integrated focus on injury prevention.
- ✓ It is a quite challenging aspect on how to ensure that the exercise we are presenting on the platform have the qualities we need when talking about injury prevention.
- ✓ Finally, it is important to consider how we facilitate the implementation part in terms of: Who are we building teaching educational material for? Focus on teacher/coach level. Focus on the principles behind the injury prevention. Train the trainers focus. Why, how and what?

Analysis and alignment

MAPPING REPORT WP1

Introduction

The TNM4 meeting in Groningen related to work packages 3, 4 and 5 marks a crucial content development gathering. During the meeting the conceptual design decisions were aligned with the early stage content development decisions. Furthermore, the first steps towards the validation activities were planned and applied in order to allow for a parallel input of the end-user feedback into the development phases.

WP2 is led by the Vrije Universiteit Brussels (VUB) in collaboration with ENSE. Due to the project's participatory approach, all partners were involved in the alignment process. Different transnational meeting directly connected to WP2 were TNM2 in Groningen (NL – 21-22/03/2019) and TNM3 in Brussels (BE – 13-14/06/2019); furthermore, online meetings in January 2019 and May 2019 prepared TNM2 and TNM3, and an 2-day meeting in September 19 and 20 2019 was organised in order to present the final outcomes.

Objective of WP2

Based on the outcomes of the mapping activities (WP1), the main objective of WP2 was to clarify and analyse the information gathered, and to develop a common analytical and thematic scope related to the envisaged educational concept, the educational content and the learning platform.

This will allow for a common understanding towards the project's generic and specific objectives, and the applicability of the approaches and needs identified. With it, WP2 includes a verification of the envisaged implementation processes and planned outcomes.

During the September 2019 meeting in Groningen, the mapping results were reviewed and discussed by the project consortium from their different angles of expertise. Due to the specific partnership structure, MOVE HEALTHY allows to look at the topic from the angles of (A) sport and PE practice, (B) health, (C) education and (D) technology. With it, the sport-practical and medical expectations were aligned with applicable educational approaches and technical possibilities. As a result, benchmarks with guidelines and recommendations for each of the four perspectives were developed so that two points of reference will exist for each perspective against which can be compared with; one will mark the minimum expectations and the other the maximum potentiality. All work package activities led – together with WP1 – into the Intellectual Output (IP) 1; the MAPPING AND ANALYTICAL SCOPE REPORT.

Concept agreement

Based on the work that was done in WP1, the consortium come up with different theoretical concepts that are essential for the next steps of the project: 1. What concept will be integrated in the platform?; 2. What will be the framework on what the exercise routines are built?

During the meeting in Groningen, the following question was answered:

- Do all partners understand what the proposed theoretical concept, developed in WP1, stand for and what can we learn for this project?

During the meeting in Brussels (June 2019), the consortium made a selection that was further discussed and agreed on in Groningen. The different concepts were discussed in detail by all members:

- GUIDING PRINCIPLES TO BE INTEGRATED IN VIDEO'S: Consortium has decided three concepts form the basis of the platform and exercises:
 - 1) Self Determination Theory (SDT) is the overarching educational concept to support feelings of autonomy, relatedness, competence and with this, increase motivation.
 - 2) Behavioral design (lower barriers): influence attitude and beliefs, change situation to enforce the wanted behavior (e.g. nudging) and give rewards for desired behavior.
 - 3) OPTIMAL motor learning theory is the overarching motor learning concept (triple play: 1) external focus of attention (implicit ML), increase motivation by 2) autonomy and 3) enhanced expectancies))

To guide the discussion, the following added value of the models for exercise routines, youngster or coach/teacher were thought off:

- E.g. which models do we use to discriminate/organize the movement skills
- E.g. what are concepts to make exercises easier/more difficult
- E.g. how do we think of prerequisites like a pedagogical safe climate
- E.g. how do we integrate in context specific practice

How can we tailor the SDT, behavioral design and OPTIMAL models for this project?

PHYSICAL EDUCATION:

- ✓ Motivation (intrinsic) must be $\uparrow\uparrow > \text{SDT (evidence based)} > \text{relatedness / autonomy / easy (lower the barriers!) / competence.}$
- ✓ Autonomy and competences are important for the differentiation and for motivation

Table 1: Principles for Platform Building

Behavioral Design	SDT	Narrative
<ul style="list-style-type: none"> • Simplicity is King (or Queen) • Focus on getting started, not (so much) where you want to go • Easy always beats Motivation • Persuasive technology 	<ul style="list-style-type: none"> • I can tailor this to my situation: Autonomy • This is for me: Relatedness • I can do this (better): Competence 	<p>Strong storytelling that boosts perceived:</p> <ul style="list-style-type: none"> • Relevance • Importance • Focus – Better Motor Learning, a part of injury prevention

>> start with something applied, not the theory

How can we tailor the SDT, behavioral design and OPTIMAL models for this project? SPORTS:

- ✓ Existing routines > change these to also target injury prevention (i.e. include focus on movement technique for coach, without pointing out that they are for injury prevention)
- ✓ Make the exercises routines attractive/challenging/fun: let them choose
- ✓ Need for interaction between coaches > to keep the website 'alive'
- ✓ Role model: give an elite athlete space on the website to make a 'one-liner' to attract users to the website

In Figure 1 a model for platform build up / linking exercise routines between SPORTS/PE is presented. We must acknowledge that fundamental movement skills can also be part of a SPORT training (commonly more specific), rather than PE alone (commonly more general).

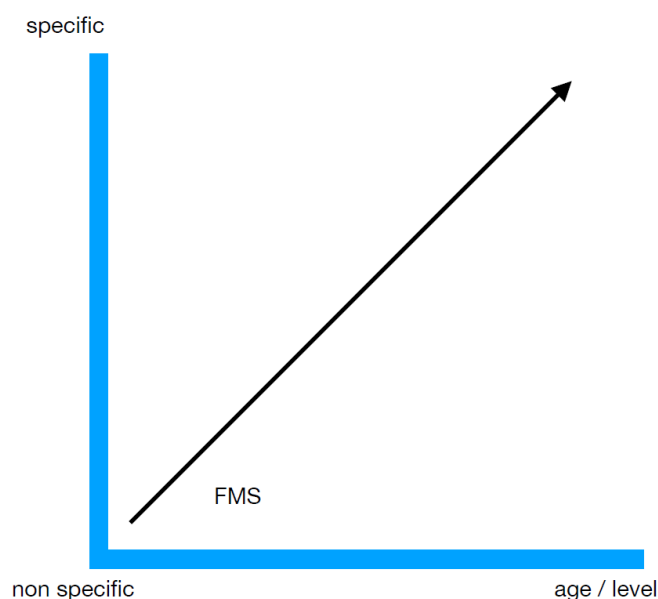


Fig 1: Fundamental Movement Skills

Within MoveHealthy, the focus is on SPORTS coaches/PE teachers (train the trainer/teacher) (Table 2). This means: 1) lesson material to help/educate them and 2) lesson material with some examples of exercise routines to help/educate them to put into practice.

Table 2: Distribution between Professional, Lesson material, Sport and PE

	SPORT	PE
PROFESSIONAL	Performance instruction: train the trainer: 70%	Participation instruction: 70%
LESSON MATERIAL	examples: 30%	examples: 30%



Conclusion – how to proceed to the next project steps?

WP2 activity

Conclusion of the alignment, needed for the platform and the exercise routines

The consortium agreed that the different theories are not equally important for the platform:

- *Self-Determination Theory* >> will be used as the primary concept for the platform and the exercise routines in order to increase motivation
- *Behavioral design/approach* >> ↓ barriers needs to be considered for the platform and exercise routines.
- *OPTIMAL motor learning* >> triple play (incl. implicit learning) will be used as the primary concept for the exercise routines.