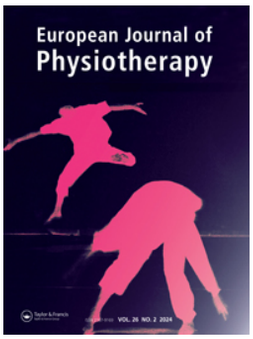

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CASE REPORT

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Sustainable human movements – a threshold concept with potential to open up new perspectives in physiotherapy

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ABSTRACT

There is a call to action for physiotherapists worldwide to contribute to the transition towards 'sustainable health'. In this paper, we build upon the current definition of 'sustainable health' and also on 'sustainable physical activity' to introduce and theoretically substantiate the concept of *sustainable human movements*, and suggest a definition thereof. *Sustainable human movements* will be described as a threshold concept with three aligned critical concepts; (i) movement control, including forces as causes of emerging movements, (ii) movement quality, referring to how movements are performed in terms of optimisation, and (iii) physical literacy, including motivation, confidence and physical competence. A deep understanding of these concepts, combined with a collaboration and learning approach applied together with the patient, is proposed to enable a *sustainable human movement* approach to permeate physiotherapy theory and practice. To facilitate this, a generic and easily accessible tool has recently been developed. It combines support for structured observational movement analysis and pedagogical support for creating a mutual and extended understanding of a patient's lived experience. This encourages the patient to become actively involved and take responsibility for promoting his/her 'sustainable health'. The aims of this paper are to a) suggest a theoretical framework for and definition of the concept *sustainable human movements*, and b) introduce a clinical tool that ultimately aims at promoting sustainable movements and health.

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Human movements; movement analysis; patient involvement; physiotherapy; sustainable health

Introduction

Inspired by Palstam et al. [1] and their call to action for physiotherapists worldwide to contribute to the transition towards 'sustainable health', we build upon current definitions of 'sustainable health' [2] and 'sustainable physical activity' [3] to elaborate on how sustainability might be understood and implemented in the field of human movements. The original definition of the concept 'sustainable development' formulated in 1987 by the UN as 'meeting the needs of the present without compromising the ability of future generations to meet their own needs' [4] has commonly been divided into three dimensions, named social, economic, and environmental [5]. These dimensions are described as being interconnected and all three can be seen as related to 'sustainable health', although the social dimension with its focus on human well-being [6] seems to more directly address human health, well-being, and quality of life. 'Sustainable health' is defined as 'a multisectoral area for study, research and practice towards improving health and well-being for all, while staying within planetary boundaries' [2]. It is closely associated with the Sustainable Developmental Goal (SDG) nr 3 [7], highlighting good health and well-being for all, and its potential to contribute to societal transformation. Thereby, the concept *sustainable human movements* introduced in this paper is suggested to be subordinate to the concept 'sustainable health'.

The WHO Global Action Plan for Physical Activity 2018–2030 [8] emphasises that promoting physical activity among the general population can contribute to 'sustainable health' and also to achieving no less than 13 of the 17 SDGs in Agenda 2030 [7]. This implies that preventive measures that promote health and an active lifestyle are often accompanied by benefits also for the environment. Additionally, Morrison [9] shows that increasing physical fitness and physical literacy among children can be a countermeasure to climate change consequences by promoting resilience and healthier living. The concept 'sustainable physical activity' has been introduced and proposed to encompass physical activities that have to be performed with sufficient intensity, frequency and duration and at the same time have a low impact on the environment [3]. This perspective is highly important, but we claim that the understanding of *sustainable human movements* will add a valuable dimension in striving towards 'sustainable health' for all since it has a main focus on the quality

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and optimisation of human movements in everyday life activities.

Palstam et al. [1] state that physiotherapy practice is a 'non-pharmacological and resource-efficient option that potentiates other forms of treatment, thereby offering the possibility to significantly reduce the environmental burden of healthcare'. We fully agree, but are still concerned that sustainability, in relation to human movements, is scarcely discussed and that no clear definition of the concept *sustainable human movements* and its relation to the optimisation of movements has not yet been found in the literature. Within the physiotherapy community, a discussion about how to identify and update the unique role of physiotherapists within the healthcare sector has been ongoing and the concept 'movement system' has been established as central in this process [10,11]. Guccione et al. [12] recently suggested using a dynamic systems approach when describing optimisation of movements emphasising the interdependencies of systems, including biomechanical, neurophysiological and psychological, which in our opinion associates with sustainability in movements in terms of energy efficiency and smoothness.

Moreover, the American Physical Therapy Association (APTA) clearly stated in its vision for 2022–2025 that physiotherapy implies '[t]ransforming society by optimising movement to improve the human experience' [13]. Expertise in the human movement system and the optimisation of movements is thus identified as central to physiotherapy practice [10,14]. However, we argue that this is not enough from a sustainability perspective. Being able to fulfil the vision of the APTA in accordance with the SDGs [7] requires not only being an expert in human movement systems but also having an in-depth understanding of what optimisation of human movements actually means. We suggest that this requires for instance knowledge about the impact of forces on movement performance, i.e. generation, absorption, and transfer between body segments of different forces in a gravity context [15] to optimise emerging movements. Furthermore, physiotherapists, as well as all health care professionals, need to engage, motivate and fully involve the patients in the co-creation of a common understanding, and immerse themselves in mutual learning processes together with well-informed and active patients [16–18].

Today, the healthcare systems in many countries are influenced by the New Public Management model [19], which in clinical practice means that quantity and accessibility to healthcare are often prioritised over quality and sustainability. With this model, there is a risk that physiotherapy practice is reduced to quick solutions for symptom treatment and encouragement of compensatory movement patterns. Moving with compensatory strategies might lead to the development of pain, restricted mobility and using an unnecessary amount of energy [20]. In the long term, this will not facilitate a physically active life or promote 'sustainable health'.

The focus should therefore be on how to support the optimisation of everyday human movements to promote a physically active life throughout the lifespan [21], which is a central goal of physiotherapy practice. Based on our knowledge, there is a lack in the literature of a definition of *sustainable human movements*. This paper will therefore a) suggest a theoretical framework for and definition of the concept *sustainable human movements*, and b) introduce a clinical tool that ultimately aims at promoting sustainable movements and health.

Sustainable human movements as a threshold concept in physiotherapy

We believe that *sustainable human movements* may serve as an overarching so-called threshold concept, a concept that opens for deepened and extended understanding within a specific area [22]. A threshold concept transforms a topic, leading to a shift in perspectives. It integrates different elements into a holistic view and clarifies linkages to other central and aligned critical concepts [23]. Additionally, it might act as an incentive for changes in thinking and thus for a changed way in which physiotherapists work in clinical practice, research, and education.

Theoretical framework and aligned critical concepts

Let us now take a closer look at three, in our opinion, aligned critical concepts that theoretically substantiate the concept of *sustainable human movements*: movement control, movement quality, and physical literacy, see Figure 1.

Movement control

A first aligned critical concept that is suggested to be central in the context of *sustainable human movements* is movement control. This concept lacks a universal definition and thus there is a need to explore, describe, and scientifically test different aspects of movement control. As the concept movement control is not yet frequently used, we will briefly describe motor control as a starting point and proceed from there.

Ever since the 1960s, when the questions 'What is being controlled?' and 'How are these processes organized?' were discussed at an international conference about motor control [24] the struggle with the same questions continues [25].

Examples of definitions of motor control include that of Latash et al. [26], who define the concept as 'an area of natural science exploring how the central nervous system produces purposeful, coordinated movements in its interaction with the rest of the body and with the environment'. A similar description is 'the ability of the central nervous system to use current and previous information to coordinate effective and efficient functional movements by transforming neural energy into kinetic energy' [27]. These definitions of motor control seem to share a focus on the nervous system's role in regulating motor output.

If we shift perspective from neuroscience to movement science, a supplementary view is suggested with a focus on the movement systems' role in controlling movement output (instead of only motor output) [10]. However, the movement systems need to be placed in a larger context, where a multitude of physical, physiological, and psychological nonlinear inputs are integrated and coordinated for goal-directed

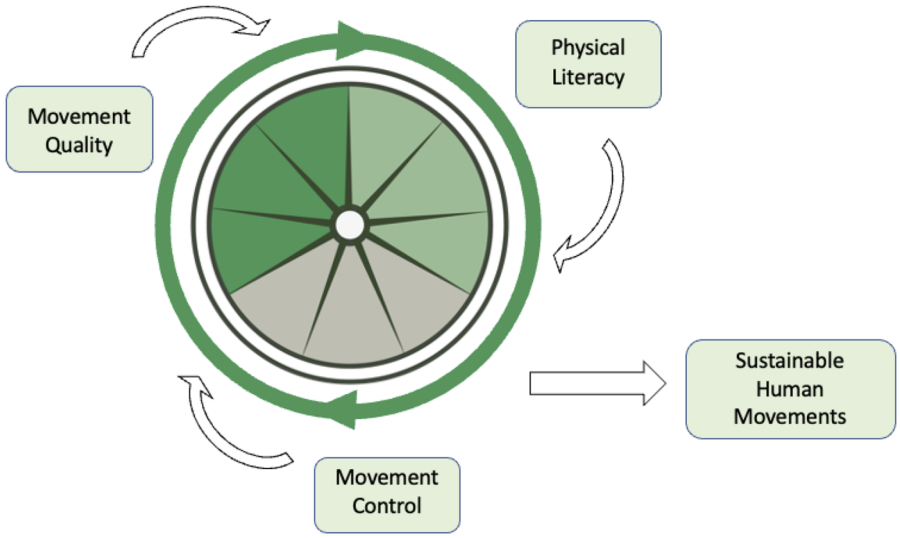

Figure 1. *Sustainable human movements* described as a threshold concept with three aligned critical concepts that push the wheel forward, promoting 'sustainable physical activity' throughout life.

movements to emerge [12]. Then, all this must be put into the context of the performer, the current task and the surrounding environment [28–30]. As regards the performer, motivation and goals, i.e. the psycho-sociocultural and existential perspectives, need to be highlighted [31].

Several critical sub-concepts are linked to both motor control and movement control, however, some of these might be more significant regarding sustainability in everyday movements. One such significant sub-concept is postural control, with its sub-components postural orientation (i.e. the ability to orient different body segments appropriately in relation to one another and the environment) [32] and postural stability (i.e. the ability to maintain the vertical projection of the body's centre of mass (CoM) within the base of support) [30]. Additionally, the interaction between how pressure is exerted towards the base of support and postural control in a whole-body perspective in three dimensions (3D) is predicted to be a focus for future research. Other sub-concepts selected to be integrated into a framework of movement control are suggested to be 'the impulse-momentum relationship' [33], 'the centre of pressure-CoM variable' [34], 'intra- and interlimb coordination' [12], and 'neuromuscular stability' [35,36]. Most importantly – in our opinion – a profound understanding of how different forces influence the quality of movements, and thereby the experience of health, is necessary for the promotion of *sustainable human movements* in everyday life. It has, for example, been reported that persons post-stroke with compensatory movement strategies use 4.5 times more braking forces when rising to walk than persons without disabilities [37].

All the aforementioned sub-concepts are expected to contribute to increased knowledge about movement control and are believed to be essential for promoting *sustainable human movements*.

Movement quality

A second aligned critical concept to *sustainable human movements* is suggested to be movement quality. This concept focuses on *how* everyday human movements are performed. Over the years, there has been much discussion about addressing the optimisation of human movements [12,29,38–40], a concept closely intertwined with movement quality and 'sustainable health'. Characteristics of high movement quality are suggested to be fluidity [41], smoothness [42], energy efficiency [43], and a 'just enough' variable [40]. A range of terms has been used regarding optimisation, such as metabolic energy expenditure [38], economy/efficiency of movement [29], and smoothness [42]. The continuous and dynamic variability in human movements is an important characteristic that has to be taken into consideration when optimisation of movements is addressed [40,44]. Furthermore, to put movement quality into its context, optimisation of human movements should always be considered concerning the performer's constraints and resources, the task, and the environment [29].

Based on in-depth interviews with physiotherapists, Skjaerven et al. [31] describe the phenomenon of movement quality in four interacting themes: (i) biomechanical, (ii) physiological, (iii) psycho-sociocultural, and (iv) existential. The second theme, physiological, relates directly to 'the movement system' – a core concept for physiotherapists – where bodily effector and support systems enable the production of body motions for everyday tasks [10].

Determining the quality of movements, and thus their potential to be more or less sustainable and promote 'sustainable health', requires skilled and structured observation as well as valid and reliable measurements. From a clinical perspective, few assessment instruments have been developed to assess movement quality during locomotion and reaching, with examples being the 'Fluidity scale for the rise-to-walk task' [45] and the 'Reaching performance scale for stroke' [46,47]. As regards instrumental movement measurements and analysis, 'smoothness' is one variable that has been suggested to be essential for processing and analysing movement quality [42]. Various smoothness metrics have been studied in several subject groups, such as the elderly

[48] and persons post-stroke [49,50]. The psychometric properties of these metrics are under investigation [51,52].

Movement quality, with its characteristics and its close relation to optimisation of movement, is considered to be a cornerstone when defining *sustainable human movements*.

Physical literacy

A third suggested aligned critical concept is physical literacy, which is a multidimensional, broad, and holistic concept that encompasses 'the motivation, confidence, physical competence, knowledge and understanding to value and take responsibility for engagement in physical activities for life' [53]. Moving with competence and confidence in a wide variety of physical activities in multiple environments is considered to benefit 'sustainable health' and well-being [21].

Physical literacy integrates physical, psychological, social, and cognitive abilities to maintain physical activity at an appropriate level throughout life [54,55] and emphasises one's movement ability and one's ability to identify and remediate changes in physical function while engaging in purposeful movements [56].

Cairney et al. [57] suggest viewing physical literacy as a multidimensional, experiential convergence process, and describe physical literacy as a determinant of health in their evidence-based conceptual model. An increased understanding and integration of the different aspects of physical literacy into a holistic concept among healthcare professionals is requested, especially in encounters with individuals at increased risk of inactivity [58]. In a rehabilitation context, this could empower the patient and support the development of physical competence, confidence, and motivation. Thus, the patient could become both informed and actively involved [18] in mutual learning and understanding of symptoms and the situation. This could cultivate 'sustainable health' as it would prepare the patient regarding what to do and how to act, not only in the current situation but also when/if symptoms reappear. Equipping the patient with this ability may also create a sense of control and safety that remains even after therapy sessions have ended.

Being physically confident and having a sense of self-efficacy in daily life movements may increase the possibility of being physically active and improve long-term overall health, which may reduce sedentary behaviour and prolong independent living, for instance among older adults [59]. Physical literacy has also shown the potential to positively impact psychosocial well-being among children [60].

Increased physical competence and confidence to move may increase motivation and the chances of adhering to the global recommendations for daily physical activity at all ages [8]. In our perspective, physical literacy is therefore an important aligned critical concept for the understanding and definition of *sustainable human movements*, highlighting the affective, physical, cognitive, and behavioural aspects of engagement in everyday physical activity.

In summary, the three aligned critical concepts described above – movement control, movement quality, and physical literacy – are commonly used within the physiotherapy tradition, albeit each one often separately. We argue that when they are combined, they may provide a solid ground to understand and act to support *sustainable human movements* and 'sustainable health' in physiotherapy clinical practice.

Sustainable human movements – a suggested definition

The development of the definition

The idea of formulating a definition of *sustainable human movements* came from a pedagogical project in which interviews with university teachers at a physiotherapy program highlighted the need for a common and deep understanding of what sustainability in relation to human movements means. We could not find any definition of *sustainable human movements,* despite repeated and extended literature searches through PubMed, CINAHL, and Web of Science. We did not find any literature that encompassed 'sustainability' and 'sustainable health' in relation to the optimisation of physical human movements. Based on the review of the current literature and discussions with experienced physiotherapists in the Swedish network of Observational Movement Analysis, the three key terms (movement control, movement quality, and physical literacy) described above were identified as critical concepts related to *sustainable human movements*. A tentative definition was formulated by an expert group consisting of ten physiotherapists (of whom seven worked as practitioners, two as researchers, five as educators, and two as healthcare managers) with various lengths of clinical experience (20–43 years) within various healthcare organisations. The definition has been revised in several steps based on feedback from clinical physiotherapists in various contexts, and students within the master course Human Movements in a Health and Sustainability Perspective at Linnaeus University.

Suggested definition

'*Sustainable human movements* are efficiently and gently performed movements that are optimised in relation to the individual's motivation and goals, prerequisites and abilities, everyday activities, and the environment. *Sustainable human movements* emerge from a purposeful interplay between external and internal forces in 3D, that achieve automatic postural stability as well as neuromuscular stability around joints. This stability is essential for energy-efficient, smooth, voluntary, and goal-directed human movements. Motivation and being confident and physically competent facilitate *sustainable human movements* and the ability to move in a variety of physical activities in multiple environments'.

The OMAwheel™ – a suggested movement analysis and pedagogical tool for integrating sustainable human movements into physiotherapy practice

Movement analysis (observational and/or instrumental) is necessary to differentiate between compensatory movements and optimised movements [20]. As many instrumental movement analysis tools are not readily accessible and often expensive, the tool most commonly used in clinical practice

is observation. Though movement analysis with the eyes is part of every physiotherapist's daily work, there are surprisingly few tools that are useful in structuring and supporting visual movement analysis in clinical practice. Recently, structured support for movement analysis in clinical practice was thoroughly described by Quinn et al. [61] and by the APTA [13]. However, there is still a lack of structured support within the movement analysis field regarding how to involve the patient as a collaborator and co-creator in the health-promoting process, which encourages the patient to take active responsibility for his/her health. Here, movement analysis might be integrated within the biopsychosocial and holistic person-centred perspectives, which are already established in the field of physiotherapy.

Observational Movement Analysis (OMA) is a concept and approach for systematic and qualitative analysis of visually observed movements with a whole-body perspective, to detect variations in individual movement behaviour. The concept has been developed by the aforementioned expert group of physiotherapists in Sweden, with comprehensive clinical experience in musculoskeletal, neurological, and pain rehabilitation in children and adults, and also from research and teaching. It is based on the Swiss approach entitled *Funktionelle Bewegungslehre* [62]. A clinical framework guiding a systematic approach to OMA in physiotherapy practice has been created.

A tool, called the OMAwheel™ (Figure 2), combining OMA with a pedagogical and patient activation dimension, has been iteratively developed and clinically tested over the last five years. However, it has not yet been scientifically tested and validated. The overarching goal of the OMAwheel™ is to support patients to move towards more *sustainable human movements* in everyday life and thereby towards an optimised physically active life and 'sustainable health'. Based on current experiences from the physiotherapists involved, the OMAwheel™ supports the clinical application of OMA and, at the same time, involves the patient in active co-creation of a common understanding and mutual learning process, which also clarifies responsibility commitment in the process towards 'sustainable health'.

A further ambition with the OMAwheel™ has been to find a common language for communication regarding OMA between physiotherapists. The tool defines three essential phases of the movement analysis process, which are similar to the phases first described by Hedman et al. [63]: 1. Starting position 2. Movement initiation 3. Movement performance. In each of the three phases, three questions guide the analysis process: 1. *How?* 2. *Why?* 3. *What?* The question of *How* relates to the quality of the movement performed. *Why* addresses possible reasons for the observed performed movement, and *What* relates to what physiotherapy interventions can be used to start making a change and improvement of the movement (Figure 2). The OMAwheel™ supports the structural evaluation in a cyclic and dynamic process.

The OMAwheel™ – supporting the individual perspective

The OMAwheel™ describes the human movement capability from an individual perspective (Figure 3) and a holistic perspective (Figure 4), to promote better understanding and management of one's mobility limitations/symptoms and also to promote optimised and more *sustainable human movements*. The OMAwheel™ has been used to support the visualisation of what can be changed and what cannot, to achieve a realistic, common understanding, and to improve the individual's prerequisites for developing *sustainable human movements*. Using the OMAwheel™, observations can be made of any movement performance in daily life activities, which implies that the focus is on impairments, rather than on a specific task. The various parts of the OMAwheel™ symbolise the human individual's prerequisites for movement (Figure 3).

- The hub, representing the brain.
- The spokes, representing physiological systems in the body, e.g. cardiovascular, nervous, musculoskeletal, and respiratory.
- The rim holds the spokes together, with different layers representing physical functions, e.g. fundamental movement skills, mobility, muscle strength, and balance control. The rim layers are glued together, and

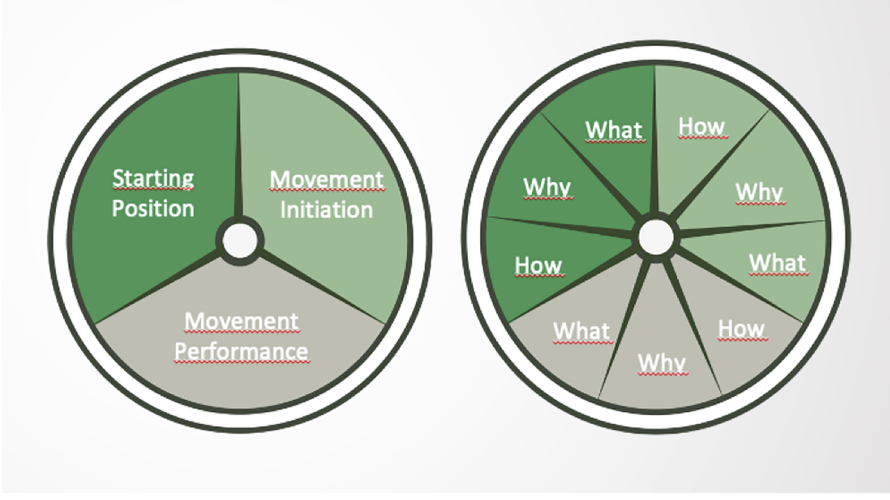

Figure 2. The OMAwheel™ as a tool for structured observational movement analysis and evaluation.

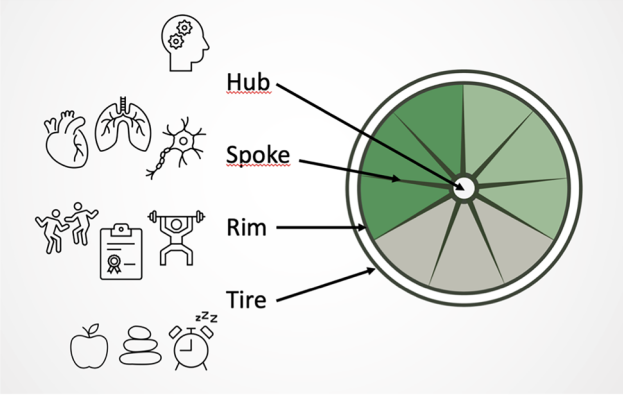

Figure 3. The OMAwheel™ as a pedagogical tool showing an individual's prerequisites, limitations, and strengths, thereby potentially supporting and guiding the individual towards *sustainable human movements*, increased self-care responsibility, and 'sustainable health'.

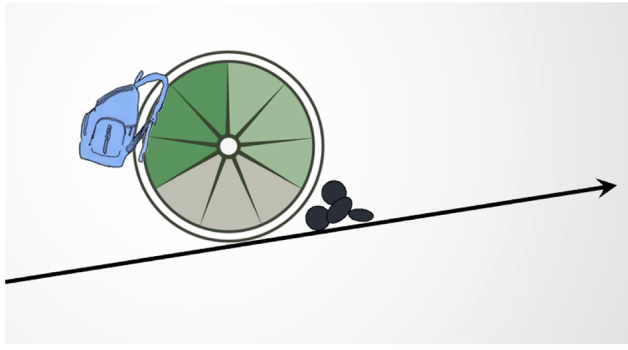

Figure 4. The OMAwheel™ as a pedagogical tool to visualise an individual's prerequisites, limitations, and strengths in a holistic and existential perspective including previous experiences, possible obstacles, and goal formulation.

the glue represents confidence, self-esteem, self-efficacy, etc. The more glue, the stronger the rim.
- The tire, representing lifestyle factors, e.g. energy intake, stress, sleep, and alcohol consumption. With a flat tire, the wheel will roll slowly, if at all.

The OMAwheel™ – supporting the holistic perspective

The OMAwheel™ is suggested to facilitate an understanding of the individual's biological and movement-related prerequisites and the psychosocial perspective, as well as the existential dimension, from a holistic perspective (Figure 4), consistent with Skjaerven et al. [31]. The OMAwheel™ visualises and supports a mutual understanding of an individual's strengths and limitations in a holistic perspective by including previous experiences (contents in the backpack), the current life situation (current incline of the road), possible obstacles/stressors (rocks in the road), expectations for the future (future incline of the road), and the goal (the arrow).

Experiences from the expert group of physiotherapists using the OMAwheel™ in the clinic show that the tool facilitates conversations with patients about which parts of the person's life are possible to do something about right now, what parts require other expertise, and what responsibilities fall on the patient, the physiotherapist, a parent, or a relative/partner. Co-creation of care is characterised by mutually reinforcing communication and relationships between healthcare professionals and patient and is especially emphasised in the care of patients with multimorbidity [64]. Integrating the patient and their parents/relatives/partner in the understanding and mapping of possible causes of the current problem or symptoms, goal setting, and the plan for the rehabilitation process can encourage a mutual learning process for both the patient and the physiotherapist. As the tool is recently developed, usability and feasibility studies are needed to determine how the tool is experienced by patients, relatives, physiotherapists, and other healthcare actors, as well as what outcomes/effects the tool may have in clinical practice. Based on our current experience, we argue that the OMAwheel™ has good potential to become an important tool in clinical practice, facilitating patient involvement [64] and encouraging a deep learning approach [65]. Therefore, it might be a valuable resource for promoting sustainable and long-lasting movement and behavioural changes. The OMAwheel™ could preferably be combined with the use of video feedback to support self-reflection and the movement awareness and learning process. The Video-supported Interactive Learning model of Movement Awareness (VILMA) [66] has shown potential to support movement awareness and long-lasting movement changes, emphasising the importance of using open, reflective questions and letting a person describe their own movements before suggesting any changes [67].

Summary and reflections

In this paper, we have theoretically substantiated and described a definition of *sustainable human movements*, suggested to be included in the concept of 'sustainable health', and thus being part of social sustainability. We suggest that this proposed concept might be considered a threshold concept within physiotherapy practice, research and education. This means that when fully understood and integrated, new perspectives in physiotherapy might arise. We agree with Björnarå et al. [3] that physical activity needs to be performed intensely and frequently and without excessive expenditure of resources. However, we emphasise the importance of quality in movements, i.e. being energy-efficient, fluid and smooth, to be able to be sustainable. In line with Björnarå et al. [3], we propose that the sustainability perspective is considered when *sustainable human movements* in everyday life are implemented with the own body, utilising gravity as an important tool. The integration of a *sustainable human movements* approach within rehabilitation processes, in which patients are actively involved, well-informed and thereby motivated to take responsibility, holds significant promise to foster a sense of security and a decrease in overall medication and care consumption. This implies a possible impact on environmental sustainability and ultimately planetary health [1]. If such *sustainable human movements* are integrated into daily life activities, this will have the potential to promote a sustainable physically active life and thereby support 'sustainable health' throughout the lifespan. In addition,

we perceive the concept *sustainable human movements* in a holistic perspective, with the potential to effect social sustainability, but also additionally being of importance for an individual's long-lasting movement behavioural change.

We have also introduced a clinical tool for physiotherapy practice called the OMAwheel™. This tool aims to facilitate the integration of a *sustainable human movement* approach into practice by combining structured support for observational movement analysis and pedagogical support for a mutual learning and understanding process between the patient and the therapist. This enables opportunities for the patient to become actively involved and to take adequate responsibility in promoting his/her 'sustainable health'.

This paper describes the concept *sustainable human movements* with three aligned critical concepts that, when combined, might shift the focus away from mainly practising tasks that risk reinforcing compensatory movement strategies, with possible subsequent disadvantages such as pain development, mobility restrictions and use of unnecessary muscular and cardio-vascular energy. Instead, the focus is renewed on the impairment level and prerequisites for *sustainable human movement* strategies in everyday life. This means a focus on movement output (where kinetics and kinematics are combined with active patient involvement), rather than predominantly on motor output. The following new perspectives of the three aligned critical concepts are predicted to be particularly important in order to expand knowledge:

- Movement control, with extended knowledge about coordination of different forces (positioned in the context of gravity) and their significance for the sustainability of the emerging movements. This will have the potential to improve treatment models. Increased knowledge about interlimb coordination, focusing on movements from a whole-body perspective, will likely enable physiotherapists to support patients to move further on the road towards sustainable everyday movements and thereby towards 'sustainable health'.
- Movement quality, which will require the development of clinical assessment tools as well as easily accessible user-friendly sensor systems focusing on movement optimisation in the context of the performer and their everyday activities, including fundamental movement skills. It is also essential to develop the competence to distinguish between compensatory movements and different levels of optimised movements. Identification of relevant variables, registered through skilled visual observations and/or wearables and/or pressure sensors capturing the quality of movement, is expected to be valuable in developing treatment models promoting sustainable movements.
- Physical literacy describes how motivation, physical confidence, physical competence, and knowledge and understanding contribute to valuing and taking responsibility for engagement in sustainable physical activities throughout life. Identifying ways to actively involve patients in a mutual learning and understanding process might open up new perspectives and strategies that empower them to take greater responsibility for their 'sustainable health'.

In the field of neurorehabilitation Roemmich & Bastian [68] have suggested '[c]losing the loop from Motor Neuroscience to Neurorehabilitation'. In conclusion, we hereby suggest a challenge for the physiotherapy community worldwide to 'close the loop from Movement Science to *Sustainable Human Movements*'. This might be a unique contribution from physiotherapists to Agenda 2030 by including a *sustainable human movements approach* into the 'sustainable health' discussion.

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Ethical approval

Not applicable.

Disclosure statement

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