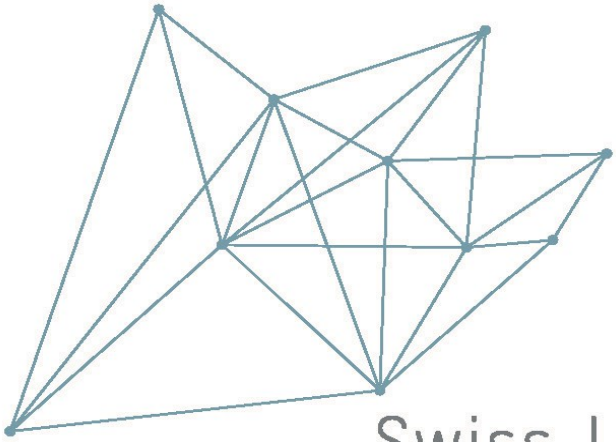

Swiss Learning Health System

How can the international clinical guidelines for knee osteoarthritis management be implemented systematically in Switzerland?

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Keywords

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Policy Briefs and Stakeholder Dialogues of the Swiss Learning Health System

The Swiss Learning Health System (SLHS) was established as a nationwide project in 2017. One of its most important objectives is to bridge research, policy, and practice. For this, an infrastructure supporting learning cycles will be provided. Learning cycles enable the ongoing integration of evidence into policy and practice by:

- continuously identifying issues and questions that are relevant to the health system,
- summarizing and providing relevant evidence from research, and
- presenting potential suggested solutions and courses of action.

Key features of the learning cycles in the SLHS include the development of policy briefs that serve as a basis for stakeholder dialogues. Issues or questions that are identified to be further pursued are monitored for potential implementation and eventually evaluated to inform new learning cycles and to support continuous learning within the system.
A policy brief describes the respective issue or respective question by explaining the relevant contextual factors and describing a number of (evidence-based) suggested solutions or recommendations. For every suggested solution or recommendation, the policy brief explains relevant aspects and potential barriers and facilitators to their implementation.
During a stakeholder dialogue, a group of stakeholders discusses the issue or the question, the proposed recommendations, and possible barriers and facilitators presented in the policy brief. The aim is for all stakeholders to develop a common understanding of the issue and collaboratively discuss and compile potential courses of action for the solution of the issue.

Key Messages

The challenges

International clinical guidelines for the conservative management of knee osteoarthritis (OA) recommend **exercise, education, and weight control (if appropriate) as first-line treatment** for all people with knee OA. However, findings from various health care settings have identified an underuse of exercise and education. A recent survey among medical specialists in Switzerland identified an evidence-performance gap, implying that the strong evidence in favour of exercise is not being transferred into clinical practice. On average, only 54% of patients with knee OA were reported to have been referred for specific exercise. The systematic application of structured exercise and education to translate the guideline recommendations into practice would help to overcome this evidence-performance gap in Switzerland.
This policy brief summarises the main results from the above-mentioned survey, describes the challenges facing the improvement of conservative disease management (i.e. the systematic application of structured exercise and education) and presents options to address the challenges resulting in three key recommendations.

Recommendations

The following describes the three key recommendations for the implementation of the clinical guideline's recommendation of 'exercise and education as first-line treatment' into practice in Switzerland:

Translation of guideline recommendations into a specific exercise and education programme
Implementing a best-practice exercise and education programme in Switzerland could be a solution to translate the guideline recommendations into practice. There are existing structured exercise and education programmes for knee OA that are already successfully established throughout the world.

Facilitation of the systematic application of exercise through standardised treatment pathways
The education of health care professionals is important to increase their understanding of the need, the effectiveness and long-term benefits of exercise, as well as the advantages of a structured treatment pathway. This would facilitate the systematic application of exercise and education through standardised treatment pathways. A standardised treatment pathway could could also facilitate an improvement in interprofessional work collaboration.

Promotion of the benefits of exercise in the long-term management of chronic diseases
To achieve a paradigm shift from the current situation of simply treating acute symptoms to structured exercise and education and self-management, it is essential to promote the benefits of exercise. The Swiss population should be informed and made aware of the fact that physical inactivity is a risk factor for knee OA related symptoms and that exercise is a beneficial intervention to prevent or improve these symptoms.

Implementation considerations

Potential windows of opportunity:

- There is high-quality evidence in favour of exercise reducing pain and improving function in people with knee OA. A Cochrane review from 2015 states that further research in this area is unlikely to change the evidence that exercise is beneficial for knee pain and physical function.[1]
- Financial pressure for cost-effective health care management.
- Increased awareness of health and cost benefits of exercise for non-comunicable diseases, e.g. knee OA.
- Existing exercise and education programmes for people with knee OA established throughout the world.

Executive Summary

The issue

International clinical guidelines for the conservative management of knee osteoarthritis (OA) recommend **exercise, education, and weight control (if appropriate) as first-line treatment for all people with knee OA**. Findings from various health care settings have identified an underuse of exercise and education, which could be due to negative attitudes, opinions or mistrust of the effectiveness of conservative management by medical doctors or health care providers (HCPs)[a)].[2] Furthermore, the lack of knowledge of OA by patients is associated with higher odds of choosing surgery as a treatment option.[3]

A recent survey of general practitioners (GPs), rheumatologists and orthopaedic surgeons in Switzerland identified an evidence-performance gap, implying that the strong evidence in favour of exercise is not being transferred into clinical practice. Which treatment options are currently being used in conservative management remains unclear. In the survey, the most mentioned used conservative treatment options are 'patient education', 'instructions on sports activities' and 'physiotherapy'. The subsequent question in the survey asking about the estimated referral rate (%) of patients with knee OA to specific exercise, was, on average, 54%. Furthermore, the survey showed that clinical guidelines are considered of low importance in the treatment decision-making process. Based on the survey results, it can be concluded that a substantial evidence-performance gap in the management of patients with knee OA seems to exist. One solution to overcome this gap is to translate the guideline recommendations into a structured exercise and education programme and its systematic application. To successfully implement such a programme, the positive attitude toward a structured exercise programm by the referring medical doctor is key. It is important that they understand that general exercise may be beneficial, but that specific exercise is more effective in knee OA patients.

The challenges of implementing "structured exercise and education"

An implementation process requires a structured approach within a framework. The Grol and Wensing framework (2004) uses six different levels, e.g. innovation level, economic and political level, social context, organisational context, individual professional level and patient level.[4] For the implementation of the guideline recommendation 'exercise and education as first-line treatment' for knee OA and the improvement of knee OA management in Switzerland, the following concrete challenges at each level and within each context should be addressed:

Innovation level:

- Doubts about the feasibility of guideline-based clinical practice by HCPs
- Low acceptance of "exercise and education" as a first-line treatment
- Low acceptance of standardised treatments and treatment pathways by HCPs
- Lack of awareness of the powerful role of exercise in society, by both patients and HCPs

a) Health care providers (HCPs): in this policy brief health care providers encompass the professionals involved predominantly in the treatment of patients with knee OA, e.g. GPs, rheumatologists, orthopaedic surgeon and physiotherapists.

Economic and political level:

- Switzerland's decentralized and complex health system makes implementation complex
- Rigid reimbursement system with no incentive for innovation (such as long-term management)
- No direct access for patients to providers of exercise programmes (gatekeeping model)

Social context:

- General perception by society that OA is not a serious condition, with a strategy of "wait and see" being an accepted option
- Societal and HCPs doubt about the superiority of exercise in conservative treatment for the improvement of pain and function
- Perceived preference of knee OA patients to be treated and managed by HCPs, rather than approaching the problem proactively with exercise and self-management
- Lack of a standardised treatment pathway, whereby all HCPs collaborate to support the needs of OA patients in managing their symptoms systematically

Organizational context:

- No standardised treatment pathway, with exercise and education as the first-line treatment for the conservative management of knee OA patients
- No incentive to change; leadership and innovation is not (immediately) rewarded

Individual professional level:

- Cautious attitude towards guideline-based clinical practice by HCPs
- Perceived threat of guidelines to the decision-making and professional autonomy of HPCs
- HCPs' unwillingness to change their own established practices
- HCPs' lack of knowledge and understanding of an effective exercise and behavioural change intervention
- HCPs' doubts about the effectiveness of time-bound exercise and education programmes, usually lasting between six to eight weeks, for long-term self-management

Patient level:

- Patients' expectations are not in agreement with guideline recommendations for exercise and education as first-line treatment
- Limited motivation for self-management when 'quick fix' interventions are available
- Patients' not prepared to undertake the necessary lifestyle behaviour changes (exercise, weight control, self-management)
- Doubts about the effectiveness of time-bound exercise and education programmes (six to eight weeks) for long-term self-management

Options to address the challenges

Innovation level:

- Address the issues of feasibility and acceptance by translating the guideline recommendations into concrete exercise and education programmes
- Involve all the key stakeholders in the implementation process and agree on their roles and cooperation in the management of knee OA patients to increase acceptance of its systematic application

Economic and political level:

- Evaluate the health and cost benefits of a systematic guideline-based treatment pathway and discuss specific reimbursement for structured exercise and education programmes

Social context:

- Educate patients and society on the development and characteristics of knee OA, as well as on the need for, effectiveness and long-term benefits of exercise and education programmes

Organizational context:

- Implement the systematic application of exercise and education within a standardised treatment pathway in each clinic, institution or hospital to favour exercise interventions and reduce the over-prescription of unnecessary second-line and third-line treatments

Individual professional level:

- Educate HCPs on the need for, the effectiveness and long-term benefits of exercise and its systematic application in conservative management within a standardised treatment pathway, including information on the importance of their professional knowledge, skills and interprofessional cooperation
- Explain the importance of positive attitudes and communication by the HPCs towards exercise and education in motivating the patient

Patient level:

- Offer early and consistent information on the development and characteristics of knee OA and on the need for, the effectiveness and long-term benefits of exercise and education programmes
- Offer individualised structured exercise and education programmes, according to the guidelines. Emphasise the need for long-term self-management of the non-communicable disease (NCD) of knee OA.

Three recommendations for action

Translation of the guideline recommendations into a specific exercise and education programme

Implementing a best-practice exercise and education programme in Switzerland could be a solution to translate the guideline recommendations into practice, and therefore to overcome the evidence-performance gap. There are successfully established structured exercise and education programmes offering first-line intervention for knee OA throughout the world, whose goal is to enhance self-management. They have similar content but differ in their target groups of patients and HCPs.

Facilitation of the systematic application of exercise and education through standardised pathways

The education of HCPs is important to increase their understanding of the need for, the effectiveness and long-term benefits of exercise, as well as the advantages of a structured treatment pathway. This would facilitate the systematic application of exercise and education through standardised treatment pathways. The HCPs have the expert knowledge and skills with regard to exercise and patient education to support patient self-management of knee OA. They have a pivotal role in conservative management – as educators and motivators. Therefore, the education of HCPs to improve their interprofessional skills is essential. Referal to such a programme could lighten the workload of medical doctors and result in more efficient use of resources. A standardised treatment pathway could also foster interprofessional work collaboration.

Promotion of the benefits of exercise in the long-term management of chronic diseases
To achieve a paradigm shift in society from the current situation of simply treating acute symptoms to exercise and education and self-management, it is essential to promote the benefits of exercise. The Swiss population should be informed and made aware of the fact that physical inactivity is a risk factor for knee OA related symptoms and that exercise is a beneficial intervention to prevent or improve these symptoms. Furthermore, patients with knee OA often have referral preferences that are not in line with the guideline recommendation. Therefore, written information, awareness campaigns and individual counselling on the benefits of exercise are crucial.

Implementation considerations
Potential windows of opportunity:

- Strong evidence on the effectiveness of exercise on pain, function and quality of life. Cochrane stated in 2015 that further research in this area is unlikely to change the evidence.[1]
- Increasing health care costs and demographic development require cost-effective health care management
- Increased awareness of the health and cost benefits of exercise compared to surgery in knee OA
- Structured exercise programmes for knee OA have been successfully established throughout the world, showing the potential of structured models of care as alternatives or supplements to surgery

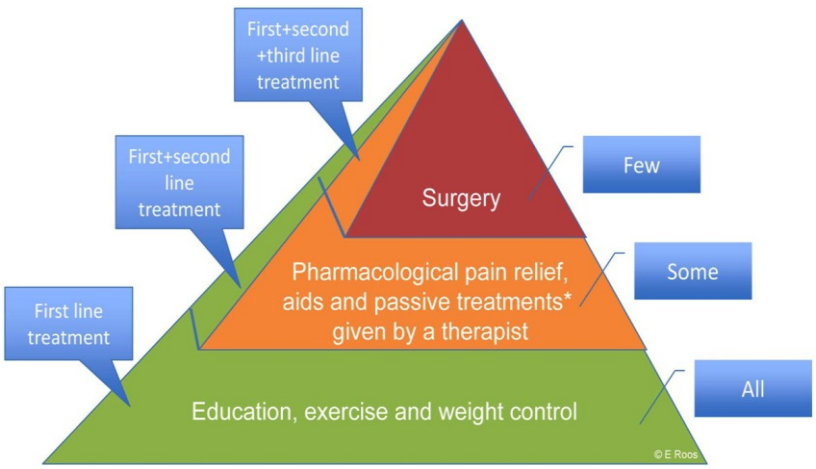
Background and Context

The Issue

Knee osteoarthritis (OA) is among the most prevalent non-communicable diseases (NCDs) in Switzerland, imposing a great burden on the patient and the health care system. The incidence of knee OA is difficult to determine and is often only confirmed by x-ray and MRI in the later stages of the disease. However, patients with symptomatic knee OA may already suffer from pain and limited function of the knee joint in the early stages.

International clinical guidelines recommend **exercise, patient education and weight management as first-line treatment for patients with knee OA** (conservative non-pharmacological management), given the strong evidence on the effectiveness of exercise on pain and physical function [5-7] (Fig.1). The goal of this first-line treatment is to teach patients self-management skills and facilitate long-term effects and the adherence to self-management. Findings from various health care settings have identified an underuse of conservative management. Symptoms are often rather treated with painkillers and a 'wait-and-see' strategy. A systematic Cochrane review from 2015[1] stated that further research on exercise for knee OA is unlikely to change the consistent evidence that exercise is beneficial for knee pain and physical function.[1] However, the underuse of exercise and education could be due to negative attitudes, opinions or mistrust about the effectiveness of exercise by medical doctors or HCPs.[2] Furthermore, a lack of knowledge by patients of their health condition is associated with higher odds of choosing surgery as a treatment option.[3] Due to the lifespan of prostheses, joint replacement should only be performed in advanced stages of OA.[8] According to national data, knee OA is the most treated diagnosis in Swiss hospitals and the trend is to provide surgery to increasingly younger patients, indicating that surgery is a frequent treatment option, with the presumption of no alternative treatment.[9]

Figure 1: Management of knee OA symptoms



A recently conducted survey (Appendix I) among general practitioners (GPs), rheumatologists and orthopaedic surgeons provided an insight into the current management of patients with knee OA in Switzerland. The main findings of the survey were that the international clinical guidelines for the management of knee OA are not systematically applied in Switzerland. It showed that clinical guidelines are considered of low importance in the decision-making process for treatment of patients. According to the survey, there seems to be a substantial evidence-performance gap with regard to the conservative non-pharmacological management of knee OA patients in Switzerland. An average of 54% of patients were reported to have been referred to specific exercise, despite 'patient education', 'instructions on sports activities' and 'physiotherapy' being the most-mentioned conservative treatment options in another question.

The Challenges

The Osteoarthritis Research Society International (OARSI), European League Against Rheumatism (EULAR), American College of Rheumatology (ACR) and the American Academy of Orthopaedic Surgeons (AAOS) provide internationally acknowledged clinical guidelines for the management of knee OA. They consistently recommend **exercise, education and weight control (if appropriate) as the first-line treatment for all people with knee OA**.[5-7] However, as pointed out in the previous sections, survey results indicate that this is not sufficiently applied in Switzerland. For the successful support of systematic referral to exercise as first-line intervention, it may be important to not simply suggest general exercise, but the systematic application of structured conservative management for knee OA.[11]

In order to ensure success and minimise the risk of failure for the implementation of the guideline recommendations for knee OA 'exercise as first-line treatment' a structured approach is needed. Research states that for the successful introduction of any innovation, it is crucial to understand the possible barriers and facilitators that need to be addressed at various levels. Grol and Wensing (2004) suggest taking into account six different levels: (1) the nature of the innovation; (2) the economic and political; (3) the social; (4) the organizational level; and, characteristics of the (5) individual professionals and (6) patients involved.[4] Based on the six above-mentioned levels, the following challenges have to be addressed:

***Innovation level*:** Doubts by HCPs about the feasibility of guideline-based clinical practice and the lack of awareness or low acceptance of exercise and education as first-line treatment, including a structured treatment pathway, should be addressed. [12] However, clinical guidelines in general are seldom used in Switzerland and there are few requirements or support for their use. As a result, there is neither the sytematic application, nor the incentive, to accept structured exercise and education as first-line treatment. Establishing exercise and education as first-line treatment and supporting self-management require the support of all involved HCPs. However, there is a lack of awareness of the powerful role and the impact of exercise on the symptoms of knee OA among HCPs and medical doctors. [13] Moreover, patients' misconceptions about knee OA and exercise, such as that exercise could further damage their "vulnerable" joint, might influence their acceptance of exercise.[14]

***Economic and political level*:** Regulations, policies and financial arrangements are important to consider in the implementation process. The liberal and decentralized Swiss health care system makes the implementation of a new health policy, i.e. a standardised treatment pathway, including a structured exercise and education programme, challenging because HCPs have high professional autonomy. Many stakeholders need to be involved in the process. In addition, the Swiss reimbursement system is rigid and provides no incentive to innovate, meaning that exercise, which is considered a low-cost intervention [15], is not being rewarded. [12] Further, there is no direct access of the patients to the providers of exercise and education. Referring doctors have a gatekeeping function, which may impede referral to supervised exercise.

***Social context*:** Opinions of society, social norms and the culture of the health care system challenge the success of the implementation of the guideline recommendation 'exercise and education as first-line treatment'. The paradigm in the management of NCDs, including

musculoskeletal conditions such as knee OA, is the focus on acute care rather than on long-term management. Knee OA is often seen by society as a non-threatening disease compared to, for example, cancer or heart disease. [16] It may be trivialized as an inevitable part of ageing, although it has all the hallmarks of a serious condition, such as premature ageing with loss of function in society, as well as premature mortality.[14,17] Furthermore, there are doubts in society and by HCPs about the effectiveness of exercise and its superiority in improving pain and function compared to medication, manipulative physiotherapy or assistive devices. Exercise has good long-term effectiveness,[3] given patient adherence. To support patient adherence to exercise and self-management, HCPs of all professions should consistently motivate the patient to be proactive.[18,11]

***Organizational context*:** Challenges due to processes, staff, capacity, resources and structures must be addressed.[12,,19] Many unnecessary treatments are still being performed, while exercise is under-prescribed due to the non-availability of standardised treatment pathways for patients with knee OA. There is no reward for leadership or innovation and, consequently, HCPs have no incentive to change their usual practices or to follow a standardised treatment pathway, except for their own professional interests.

***Individual professional level*:** Challenges concerning the attitude, motivation to change, awareness, knowledge and behavioural routines of HCPs must be addressed, i.e. GPs, rheumatologists, orthopaedic surgeon and PTs. [12,16,18] HCPs often consider the guideline recommendations for knee OA management not to be infeasible for their patients. They also do not appear to understand that the guidelines are a support to structured management and standardised treatment pathways for knee OA patients, but rather see them as a threat to individual decision-making and professional autonomy.[20] Many HCPs have long established practices and considerable own experience, often resulting in a low willingness to change their routines. Furthermore, the translation of the guideline recommendation of exercise and education as first-line treatment might be challenging because of doubts about the long-term effects of a time-bound exercise and education programme of about six to eight weeks, for long-term self-management. [18]

***Patient level*:** The knowledge, skills, attitudes and adherence of patients can challenge the implementation of exercise and education as first-line treatment.[14] The expectations of patients about treatment of their knee problems are often not in agreement with the guideline recommendation for exercise and education as first-line treatment. The motivation of the patients to self-manage may be limited when the health care system offers 'quick fix' interventions, such as the use of painkillers and even surgery.[12] Effective exercise performance and self-management of knee OA requires long-term adherence and behavioural change supported by HPCs, i.e. the treating doctors and therapists. [21] Patients have different levels of motivation to change their lifestyle, exercise behaviour and weight control. Self-management requires long-term adherence. Patients need consistent support from the HCPs to understand the management of their knee OA, pain and fear and to build confidence to exercise and in their self-management abilities.

Options to address the challenges

The options to address the previous mentioned challenges are described on each level. These options were collected from many different studies that identified barriers and facilitators and 'lessons learned' for the implementation of exercise and education as first-line interventions in other countries. Based on the options presenting in this section, the subsequent section will provide three key recommendations that are specific for the Swiss context.

***Innovation level*:** Translate the recommendations into practice by the systematic application of structured exercise and education through a programme to increase the feasibility and acceptance of the guideline.[13, 14, 19, 22, 23, 24] All key stakeholders, i.e. GPs, rheumatologists, orthopaedic surgeons and PTs, should be involved in the definition of a structured treatment

pathway, with roles being defined according to their specific professional knowledge and skills to increase its acceptance.[12]

***Economic and political level*:** Evaluate health and cost benefits of a standardised guideline-based treatment pathway. The goal of an "exercise and education programme" is to improve pain and function through long-term self-management and adherence to exercise, which will be reflected in lower health care costs and costs for diagnostics and medical consultations.[6, 18] Further, specific reimbursement for structured exercise and education programmes should be discussed.

***Social context*:** Educate patients and society on the characteristics of knee OA and on the need for, effectiveness and long-term benefits of exercise and education.[12-15] Information on the potential of exercise and education addresses the problem of trivialisation of OA. [14, 16] Information on self-management strategies enhances the long-term management of OA symptoms.[1] Therefore, a positive attitude of medical doctors and PTs towards exercise is important in supporting and motivating the patient to be pro-active.[14] Moreover, referring doctors and PTs could improve their work collaboration through a standardised treatment pathway, with every professional involved having a defined role according to their competences.[19]

***Organizational context*:** Favour exercise interventions and reduce over-prescription of unnecessary second-line and third-line treatments, such as medication, passive treatment or even surgery (Figure 1). [10, 24] The implementation of the systematic application of exercise and education through a standardised treatment pathway in each clinic, institution or hospital could assist in addressing the underuse of first-line treatment.[8] This would also help to make the first-line treatment available to all patients with knee OA.[12] A standardised treatment pathway will improve the feasibility of exercise as first-line treatment and support the acceptance and the importance of specific professional knowledge, skills and interprofessional cooperation.[12, 14, 19]

Individual professional level: Educate HCPs on the need for exercise, together with its effectiveness and long-term benefits, as well as its systematic application through a standardised treatment pathway. [12, 14, 18] The HCPs have the expert knowledge and skills regarding exercise and patient education to support their patients in managing knee OA. Educating HCPs on the importance of their specific professional knowledge, skills and interprofessional cooperation is key. Additionally, HCPs and medical doctors should understand the importance of their own attitudes towards exercise and education and should communicate with a positive attitude to motivate patients to exercise and to self-manage.[14]

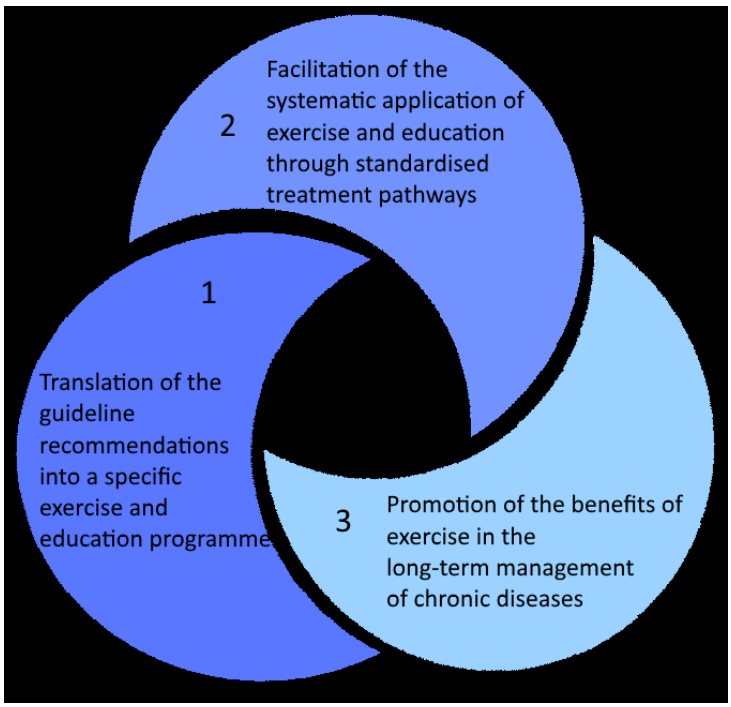
Patient level: Offer early, consistent information on the development and characteristics of knee OA and on the need for exercise, together with its effectiveness and long-term benefits.[12, 14, 19] Offer individualised structured exercise and education programmes, according to the guidelines.[25] Emphasise the need for long-term self-management of the NCD of knee OA.[26]

Key recommendations to improve conservative knee osteoarthritis management in Switzerland

Based on a survey of GPs, rheumatologists and orthopaedic surgeons (Appendix I) that presents the current state of conservative knee OA management in Switzerland, a substantial evidence-performance gap in the conservative non-pharmacological management of knee OA patients seems to exist. Translating the international guideline recommendations by OARSI, EULAR and ACR into a best-practice programme could be a solution for the implementation structured exercise and education as first-line intervention.
The previous section summarized challenges to the implementation of the systematic application of structured exercise and education through a best-practice programme, as well as options to address them on six different implementation levels, i.e. innovation level, economic and political level, social context, organizational context, individual professional level and patient level.
This policy brief provides three main recommendations, aiming to encompass the described challenges and options on all levels of implementation, to improve conservative knee OA management in Switzerland by implementing the clinical guideline's recommendation of 'exercise and education as first-line treatment' in Switzerland:

1. Translation of the guideline recommendations into a specific exercise and education programme
2. Facilitation of the systematic application of exercise and education through standardised treatment pathways
3. Promotion of the benefits of exercise in the long-term management of chronic diseases

Figure 2: Recommendations for the implementation of exercise and education as first-line treatment



Recommendation 1: Translation of the guideline recommendations into specific a exercise and education programme

In many countries the international guideline recommendations have been translated into concrete exercise and education programmes to facilitate their implementation. This might be a feasible solution for Switzerland as well. There are existing structured exercise and education programmes for knee OA that have been endorsed by the Osteoarthritis Research Society International OARSI and been successfully established throughout the world, e.g. "Osteoarthritis Chronic Care Program (OACCP) Australia", "Better management of patients with osteoarthritis (BOA) Sweden", "Good Life with osteoarthritis in Denmark (GLA:D)", "Osteoarthritis Healthy Weight For Life (OA HWFL) Australia", "Amsterdam osteoarthritis cohort (AMSOA) The Netherlands" or "Joint Implementation of Osteoarthritis guidelines in the West Midlands (JIGSAW) UK".[26] These programmes have had significant positive long-term effects on pain and function, as well as on other outcomes such as quality of life, fear-avoidance behaviour, or willingness/desire for surgery. Furthermore, they have the potential to reduce health care costs compared to conventional prescribed interventions.[15,26-29] All programmes have similar content, delivering exercise and education with different degrees of intensity and standardisation, but they target different patient subgroups and involve different HCPs.[26]
An analysis conducted by the School of Health Professions, Zurich University of Applied Sciences identified BOA and GLA:D as the most feasible programmes for the Swiss health care system, based on patient group, the HCPs involved and the similarities of the health care systems. Up to 2020, GLA:D had been successfully implemented in Canada, Australia, China and parts of Switzerland. Preparations for its implementation in New Zealand, Austria and the Netherlands are in process. A group of experts from research and clinical practice started the implementation of GLA:D in Switzerland in 2019. During its first year, 127 PTs were certified, and 337 patients enrolled into GLA:D Switzerland courses. GLA:D Switzerland will be funded from 2020-2023 by the Foundation for Health Promotion Switzerland (Stiftung Gesundheitsförderung Schweiz), within its programme 'prevention in health care'.

Box 1: Better management of patients with OsteoArthritis (BOA) – An example from Sweden [23, 26, 28]

Financed by the national social insurance office and the Swedish government, the Swedish programme "Better management of patients with OsteoArthritis" BOA was rolled-out across four geographic regions of Sweden in 2008. The programme is on-going and addresses (amongst others) knee OA patients with sufficient non-traumatic pain to seek care. The programme consists of three components: (1) standardised assessments of pain intensity, physical function, physical activity, quality of life, use of painkillers, and sick leave at baseline and after three and 12 months; (2) educational sessions delivered by PTs and and 'expert patients'; and (3) supervised, individually-tailored exercise sessions. Patients can either participate through supervised exercise groups or through an individualized exercise programme at home.
BOA shows a significant reduction in (daily) pain, fear–avoidance behaviour, sick leave, and OA medication, as well as a significant increase in the quality of life and attitudes towards exercise. BOA in Sweden was the first structured exercise and education programme for knee OA patients to be introduced, followed by the slightly modified GLA:D in Denmark. In contrast to BOA, GLA:D introduced the concept of neuromuscular exercises (NEMEX) and the certification of PTs providing the programme. GLA:D used a bottom-up approach by certifying PTs and achieving a strong presence in mass media. The two programmes have only minor differences in content and delivery.

Recommendation 2: Facilitation of the systematic application of exercise and education through standardised treatment pathways

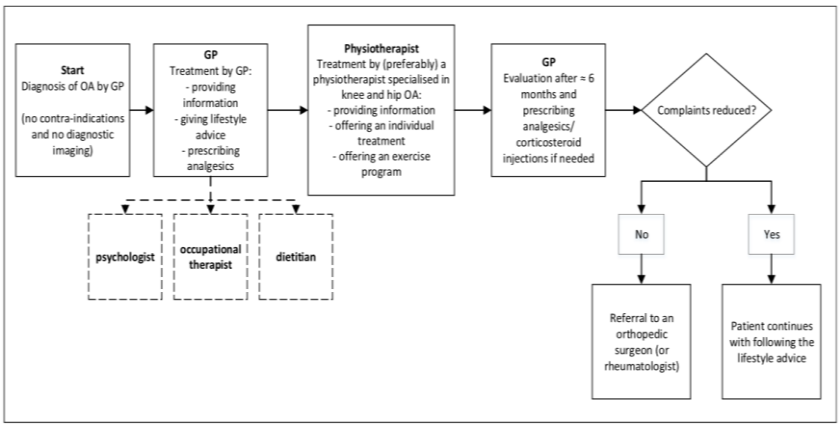
It is recommended that the systematic application of a specific exercise and education programme be facilitated through the implementation of standardised treatment pathways for patients with knee OA. All key stakeholders, such as GPs, rheumatologists, orthopaedic surgeons and PTs, need to be included and their roles defined, according to their specific professional knowledge and skills. These stakeholders have a pivotal role to play in the conservative management of knee OA patients – as educators and motivators.[30] Patients need consistent support from their HCPs through good collaboration to understand the management of their knee OA and also to gain the confidence to exercise and in their ability to self-manage.[14] Therefore, the implementation of standardised treatment pathways requires the education of HCPs to improve their interprofessional skills.[31]

"Lack of confidence, knowledge and skills by health professionals on providing effective counselling has been identified as a barrier to successful programmes" [32]

Patients and HCPs may be reluctant to accept a structured exercise and education programme despite the fact that referral to an exercise programme, including counselling on OA and the effects of exercise on OA, could decrease the workload of medical doctors and result in more efficient use of resources. The referring medical doctors might be more willing to accept the concept of a standardised treatment pathway if they were confident of the other HCPs' competences and received feedback on the achieved outcomes. BOA and GLA:D register all participating patients in a database to evaluate their individual treatment progress. The programme itself is monitored through standardised assessments. Thus, referring doctors receive individual reports on their patients after completion of the programme. This fosters interprofessional collaboration and encourages the management of patients according to the guidelines. Moreover, the BOA and GLA:D programmes emphasize the professional autonomy of the treating PTs, since they are able to individualise the dosage and performance of the standardised exercise programme according to the patient's needs.[22, 23, 26]

Box 2: Example of care pathways 'Better exercise for osteoarthritis' for patients in the Netherlands[8]

In 2015, an expert group of GPs, a physiotherapist, a rheumatologist, a radiologist, an orthopaedic surgeon, a physician assistant and a coordinator, implemented systematic care pathways in a region of the Netherlands with 185'000 residents to improve diagnostics and reduce early referral to the orthopaedic surgeon. An educational meeting for the involved HCPs helped to improve patient-centred communication skills, which are associated with the reduction of diagnostic-testing expenditures. The care pathways had a positive effect on knee-related diagnostic claims and costs after its implementation. However, referrals to the orthopaedic surgeon increased. The study concluded that GPs may have felt obliged to refer patients to orthopaedic care when the PTs did not use conservative treatment optimally. Nevertheless, the study showed the importance of educating the HCPs on the need for exercise, together with its effectiveness and long-term benefits, as well as its systematic application through a standardised treatment pathway and work collaboration.



--- (dashed lines) refer to optional steps in the care pathway.
OA = osteoarthritis, GP = general practitioner.

Recommendation 3: Promotion of the benefits of exercise in long-term management of chronic diseases

It is recommended that the Swiss population be fully informed that physical inactivity is a risk factor for knee OA related symptoms. In addition, that exercise is a beneficial intervention to prevent or improve these knee OA symptoms. Structured exercise and education should be promoted in society in order to achieve a paradigm shift in treatment. The goal is to move from the current situation of simply treating acute symptoms to a long-term, self-management approach through exercise and education in the management of knee OA.
The Swiss NCD strategy (2017-2024) defined the strategies in the fields of 'health promotion and prevention' and 'prevention in health services'.[33] The latter is relevant for the promotion of exercise for chronic diseases, such as OA. The field of 'prevention in health services' includes management of the risk factors, the prevalent diseases and their consequences. [33] Regarding OA prevention and management, the population should be made aware of the disease, the risk factors, and the potential preventive measures. Material should be disseminated on how exercise can prevent or decrease knee OA symptoms, as well as on what factors could lead to chronification of the symptoms or to a diagnosis of 'knee OA'. Awareness campaigns, focusing on the benefits of exercise in reducing the risk factors, could also help to sensitize the population.

Box 3: Health promotion strategies in Switzerland [32-34]

The Swiss NCD strategy aims to strengthen preventive measures in general and promote the integration of prevention into acute and long-term care policies. It also seeks to: develop evidence-based prevention instruments; institutionalisie the coordination and cooperation of NCD stakeholders; increase funds available for preventive health measures; augment monitoring and research on NCD prevalence; improve the information provided to the public and businesses on environmental factors (such as workplace security) in order to prevent NCDs. (Flash Reports by the European Social Policy Network, ESPN)
The Swiss League against Rheumatism (SLR) complemented this strategy by formulating specific strategies for musculoskelettal diseases (2017-2022) in secondary and tertiary prevention. Specifically, 'prevention in health services' aims to enhance the self-management of people with a chronic disease and to educate HCPs. [34]

Following the diagnosis of 'knee OA', as well as over the course of the disease, it is very important to provide high-quality, tailored disease management. Good counselling, based on the benefits of specific exercise, is essential because people often have misconceptions about knee OA that influence the acceptance of exercise and weight management.[20,21] Misconceptions are often beliefs, such as: 'knee OA is bone to bone' and caused by 'wear and tear'; or, knee pain naturally worsens over time and is increased through exercise; or, that loading the knee could further damage the affected joint.[14] This often leads to choices such as 'wait and see' or early surgical interventions that do not correspond to the guideline recommendations. Interprofessional collaboration is essential to promote exercise and education as the first-line intervention in the management of knee OA.

Implementation considerations and potential windows of opportunity

Evidence on the effectiveness of exercise

A potential window of opportunity for the implementation of exercise and education as the first-line treatment of knee OA is opened by the availability of strong evidence on the effectiveness of exercise on pain, function and quality of life. A systematic Cochrane review from 2015[1] stated that further research on exercise for knee OA is unlikely to change the consistent evidence that exercise is beneficial for knee pain and physical function.[1]

Established exercise and educational programmes

The successful establishment of effective structured exercise and education programmes for knee OA throughout the world shows the need for structured models of care, either as an alternative or supplements to surgery. This opens another potential window of opportunity.

Pressure for cost-effective health care management

Demographic developments have led to increased health care costs and, subsequently, to increased financial pressure on cost-effective health care management and changes in the health services. Knee osteoarthritis is a chronic disease that needs long-term management. The implementation of first-line OA management and interventions that support patient self-management has the potential to save substantial costs in the Swiss health care system, due to the likely deferral and potential reduction in surgery.

Awareness of the health and cost benefits of exercise

Growing awareness of good health through exercising in general and the cost benefits of exercise favours the implementation of exercise and education as first-line treatment, since it has been proven to be a cost-effective intervention.

Ongoing implementation of a best-practice programme in Switzerland

Another window of opportunity is the recent launch of an exercise and education programme in Switzerland. This exercise and education programme, called GLA:D Switzerland was implemented independently of this work and is one of the feasible programmes mentioned earlier. This policy brief, together with the strategic implementation of the guideline recommendations, could support the structured implementation of GLA:D Switzerland throughout the Swiss health system.

Stakeholder involvement

In order to successfully implement structured knee OA management, the process should be endorsed through stakeholder engagement. One option is a stakeholder dialogue, in which all key stakeholders involved should participate, i.e. the referring and treating medical doctors, PTs and patients. The overall goal of such a dialogue will be to define a potential implementation process for an exercise and education programme and its systematic application in Switzerland.

Topics for discussion will be:

- Achievement of a common understanding of the problem of the 'evidence-performance gap' by addressing the following questions and discussions: Is there an underuse of exercise and education as first-line treatment in conservative knee OA management? Can non-pharmacolocical conservative management be improved, i.e. exercise and education?
- Discussion on the translation of the clinical guideline recommendations into a structured exercise and education programme: Would it be useful to improve the conservative management of knee OA with a structured exercise and education programme? Are there any reasons for or against such a programme?
- Discussion on the systematic application of exercise through a structured exercise and education programme as first-line treatment: Would the systematic referral of structured exercise, through an exercise and education programme, be beneficial for improving conservative treatment? What are the barriers and facilitators for the implementation of such a programme?
- Discussion on the implementation process/strategy

Reaching agreement and commitments from stakeholders, who are all members of professional societies, would help with the implementation and a broader acceptance of exercise as the first-line intervention.
Following the dialogue, the concrete implementation strategies will be formulated and applied.

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Appendix I: Published Article

The article with the title "**Does the Conservative Non-pharmacological Management of Knee Osteoarthritis in Switzerland Reflect the Clinical Guidelines? A Survey Among General Practitioners, Rheumatologists, and Orthopaedic Surgeons**" by Lea Ettlin, Irina Nast, Erika O. Huber and Karin Niedermann summarizes the survey results that were discussed in this policy brief. The article was published in *Frontiers in Rehabilitation Science* and can be found under the following link:
https://www.frontiersin.org/articles/10.3389/fresc.2021.658831/full


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