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*Published in:*  
Scandinavian Cardiovascular Journal

*DOI:*  
10.1080/14017431.2019.1654614

*Publication date:*  
2019

*Document version:*  
Accepted manuscript

*Citation for pulished version (APA):*

Jensen, J. D., Tang, L. H., Zwisler, A-D., Houlind, K., & Skou, S. T. (2019). National Survey of Current Practice and Opinions on Rehabilitation for Intermittent Claudication in the Danish Public Healthcare System. *Scandinavian Cardiovascular Journal*, 53(6), 361-372. <https://doi.org/10.1080/14017431.2019.1654614>

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## **National Survey of Current Practice and Opinions on Rehabilitation for Intermittent Claudication in the Danish Public Healthcare System**

**Author:** Janne Dyrby Jensen PT, MSc<sup>1</sup>, Lars H. Tang PT, PhD<sup>2,3</sup>, Ann-Dorthe Zwisler MD, PhD<sup>2</sup>, Kim Houliind MD, PhD<sup>4,5</sup>, Søren T. Skou, PT PhD<sup>1,3</sup>

### **Affiliations:**

<sup>1</sup> Research Unit for Musculoskeletal Function and Physiotherapy, Department of Sports Science and Clinical Biomechanics, University of Southern Denmark, 5230 Odense, Denmark

<sup>2</sup> Danish Knowledge Centre for Rehabilitation and Palliative Care, University of Southern Denmark, 5800 Nyborg, Denmark

<sup>3</sup> Department of Physiotherapy and Occupational Therapy, Naestved-Slagelse-Ringsted Hospitals, Region Zealand, 4200 Slagelse, Denmark

<sup>4</sup> Department of Vascular Surgery, Lillebaelt Hospital, Sygehusvej 24, 6000 Kolding, Denmark

<sup>5</sup> Department of Regional Health Research, University of Southern Denmark, 5230 Odense M, Denmark

**Keywords:** Intermittent Claudication, rehabilitation, cross sectional surveys, clinical practice patterns

**Corresponding author:** Janne Dyrby Jensen. [janne@dyrby.com](mailto:janne@dyrby.com)

**Brief statement on what this study will add to the existing literature and how will it influence future clinical practice:**

Knowledge about implementation of guideline recommendations of rehabilitation for patients with Intermittent Claudication is scarce. We systematically investigated current clinical practice on a national level, providing an important overview of current care and the foundation needed to ensure proper implementation in clinical practice.

Despite strong supportive evidence, our study demonstrated that rehabilitation, and in particular supervised exercise therapy, is still a largely underutilized tool. As all vascular surgeons would refer patients to rehabilitation if available, our study supports the development of a structured, evidence-based rehabilitation program with the potential of improving care for a large population of patients.

## **Abstract**

*Objective* International guidelines recommend rehabilitation including supervised exercise therapy in patients with Intermittent Claudication (IC), but knowledge of the implementation in clinical practice is limited. This study aims to investigate current practice and opinions on rehabilitation for patients with IC among vascular surgeons and rehabilitation departments in the municipalities and hospitals.

*Design* Three electronic cross-sectional surveys were distributed nationally to the Danish vascular surgeons (n=131) and to rehabilitation departments in the municipalities (n=92) and hospitals (n=33).

*Results* The response rates were 70% among the vascular surgeons, 98% among the municipalities and 94% among the hospitals. Vascular surgeons utilize oral advice to exercise by self-administered walking, pharmacological treatment, and revascularization to improve walking distance in patients with IC. Currently, only 12% of the vascular surgeons referred to rehabilitation to improve walking distance, while almost all vascular surgeons (96%) would refer their patients to IC rehabilitation, if it was available. Only 14% of municipalities and none of the hospitals, who treat patients with IC, have a rehabilitation program designed specifically for patients with IC. However, 59% of the rehabilitation departments in the municipalities and 26% in the hospitals included patients with IC in rehabilitation program designed for other patient groups – mostly cardiac patients.

There was consensus among the groups of respondents that future IC specific rehabilitation should include an initial conversation, supervised exercise therapy, smoking cessation, and patient education according to guidelines.

*Conclusion* Vascular surgeons support referral and participation in IC rehabilitation to improve walking distance in patients with IC. Despite some hospitals and municipalities included patients with IC in rehabilitation nearly all services fail to meet current guideline as specific services tailored

to patient with IC is almost non-existent in Denmark. Our findings call for action for services to comply with current recommendations of structured, systematic rehabilitation for patients with IC.

## Introduction

Intermittent Claudication (IC) is a marker of systemic atherosclerosis, which is associated with cardiovascular mortality rates at 5 and 10 years of 42% and 65%, respectively [1]. IC is highly prevalent in Western countries affecting approximately 5% of the general population aged 40 years and older [2]. Contemporary, international guidelines recommend supervised exercise therapy (SET) to be one of the cornerstones in the rehabilitation of IC [3,4,5]. SET is effective as a rehabilitation strategy in >80% of the patients with IC [4,5,6,7,8], and it improves the functional status and health-related quality of life (QOL) [3,4,5]. Trials with long-term follow-up indicate a persistent benefit of SET in patients with IC [9,10,11], and SET is cost-effective as rehabilitation [12].

Even though SET is an effective rehabilitation strategy to improve walking distance and health-related QOL in patients with IC, it remains underutilized in clinical practice [13]. As supervision is essential to improve outcomes of rehabilitation including SET [14, 15] recommendations of self-administered walking are insufficient [16, 17]. Specific knowledge and availability of evidence-based treatment options is important for the health care providers and might partly explain the underutilization [18]. Also, limited availability of qualified therapists and financial barriers in the health-care system can add to the underutilization [19]. Structured, systematic rehabilitation including SET, to which vascular surgeons and general practitioners can refer, might be the solution to comply with current recommendations and improve utilization and outcomes in clinical practice. Before developing and implementing such a program a deeper understanding of current practice and opinions on rehabilitation for patients with IC is needed.

A national survey was therefore conducted among 1) vascular surgeons and 2) rehabilitation departments in municipalities and hospitals in Denmark to map the current practice and opinions on rehabilitation for patients with IC in the public healthcare system.

## **Materials and methods**

### *General design*

This study is based on data from two nationwide cross-sectional electronic surveys and is reported according to the CHERRIES- and STROBE Statement Checklists for E-surveys and Cross-sectional studies [20,21]. The surveys were developed using a guide to design and conduct self-administered surveys for clinicians [22].

### *Rehabilitation in a Danish context*

The management of cardiovascular rehabilitation in Denmark is a shared responsibility between the hospitals (regional level) and the municipalities (municipal level) [23]. Rehabilitation programs including SET can be offered in private physiotherapy clinics, where the treatment is partly paid by the patient, or in the public rehabilitation departments in the municipalities or hospitals, where the treatment is tax financed [24].

### *Survey among Danish vascular surgeons*

All members of the Danish Society of Vascular Surgeons were invited to participate in the survey (131 members). The final 18-question survey was distributed and assembled as a closed online web-based survey. Each member was contacted by e-mail. Initially, they were asked to respond if they considered themselves inappropriate respondents for this survey. Inappropriate respondents included members who had retired or were not working with patients with IC. The survey items were constructed based on a similar Dutch survey [19] and a general literature search. The survey was pilot-tested by two vascular surgeons from the Danish Society of Vascular Surgeons. See appendix 1 for the survey.

### *Survey among Danish public rehabilitation departments*

The survey concerning rehabilitation for patients with IC was included in a nationwide survey regarding rehabilitation for people with cardiac diseases. All Danish public rehabilitation

departments (36 hospitals and 98 municipalities) were invited to participate in the survey. The Danish Cardiac Rehabilitation Database (DHRD) [25] contacted all rehabilitation departments to identify the relevant respondents. At first, the respondents from a previous survey were contacted [26]. If they did not respond, the department head was contacted to identify the relevant respondent. The 17-question survey for the hospitals and 18-question survey for the municipalities were almost identical with few differences in response options and one extra question for the municipalities concerning who refer patients to the municipality. The surveys were pilot-tested by one respondent from each setting. See appendix 2 for the survey.

### *Data collection*

The electronic surveys were conducted in the Spring 2018, using Survey Xact version 12.6 (Ramboell Management Consulting, Aarhus N., Denmark). Participation by the vascular surgeons was voluntary. The surveys to the Danish public rehabilitation departments were gathered through the DHRD, where the municipalities had voluntary participation and the hospitals are required to respond according to Danish law.

The web-based questionnaires were sent out by e-mail to the responders using a unique link for each respondent. Two additional reminder-mails were sent to the non-responders. The non-responders in the hospitals and municipalities were afterwards contacted by phone.

The vascular surgeons in one of the health care regions did not respond to the distribution or reminder-mails. The department head and a vascular surgeon from the project were contacted to try to motivate their colleagues to respond. This did not improve the response rate (0% improvement). Therefore, an extra e-mail was distributed to the vascular surgeons in this health care region, which improved the response rate for this region.

### *Ethics*

Approval from the Regional Scientific Ethical Committee was not necessary for this study according to Danish law, since the study was a questionnaire survey [27,28]. The surveys were



approved by the Danish Data Protection Agency (University of Southern Denmark, approval number 10.119). In the distribution and reminder e-mails the respondents were informed that by answering the questionnaire they accepted that their answers would be part of the aggregated results and treated anonymously.

### *2.7 Data management and analysis*

After data collection was completed, the surveys were screened to ensure that all surveys were completed correctly. In the case of missing answers, no imputation took place.

Data were analyzed using descriptive statistics. All variables were expressed as number (percentages) or mean (standard deviation). All statistical analyses were performed using SPSS 25 software (IBM Corporation, Armonk, New York, USA).

## Results

### *Survey responses*

Survey participation is illustrated in figure 1. The response rates were 70% (n=78) for the vascular surgeons, 98% (n=96) for the rehabilitation departments in the municipalities and 94% (n=31) for the rehabilitation departments in the hospitals. The respondent characteristics are illustrated in table 1.

### *Current practice and knowledge among the vascular surgeons*

The current practice by vascular surgeons is illustrated in table 2. The most common treatment to improve the walking distance in patients with IC consisted of oral advice to self-administered walking with a follow-up (71%) and revascularization (64%). Only 12% of the vascular surgeons referred to SET to improve walking distance.

The knowledge of existing IC rehabilitation programs and referral pattern by the Danish vascular surgeons is illustrated in figure 2.

A substantial part of the vascular surgeons (77%) did not know of any existing rehabilitation program for them to refer their patients to and most of the vascular surgeons therefore did not refer patients with IC to rehabilitation (78%).

### *Current practice in the public rehabilitation departments*

The current practice in the Danish rehabilitation departments is illustrated in table 3.

Most of the rehabilitation departments in the municipalities (59%) treated patients with IC.

However, only 14% of those had a rehabilitation program specifically tailored to patients with IC. In the hospitals, only 26% treated patients with IC, and none of them had rehabilitation tailored to patients with IC.

The rehabilitation typically consisted of an initial conversation and SET in both hospitals and municipalities. Only a few of the rehabilitation teams that treated patients with IC included employees with specific knowledge of IC (9% of the municipalities and 29% of the hospitals).

#### *Opinions regarding rehabilitation among vascular surgeons and the public rehabilitation departments*

The opinions regarding optimal rehabilitation are illustrated in table 4.

There seemed to be consensus between the respondents that the rehabilitation should consist of an initial conversation, SET, patient education, and smoking cessation. In general, the three groups of respondents also agreed that the organization should be supervised and in groups.

In the rehabilitation departments only 41% of the municipalities and 30% of the hospitals were aware of the National clinical guideline for patients with IC.

Table 5 lists the Danish vascular surgeons' opinions on when to offer rehabilitation including SET to patients with IC. Almost all vascular surgeons (96%) would refer patients with IC to rehabilitation if it was available. According to the level of agreement to statements regarding the use of SET, there seemed to be a variety of opinions towards which patients should be referred to SET.

## Discussion

Current practice among the vascular surgeons was to give oral advice to start walking, pharmacological treatment (e.g. statins), and revascularization to improve walking distance in patients with IC. Only 1 out of 10 vascular surgeons referred to rehabilitation (SET) to improve walking distance, while almost all Danish vascular surgeons would refer to rehabilitation if available. Only a few of the municipalities and none of the hospitals that treat patients with IC had a specific rehabilitation program designed for the population. Overall, our results highlight the need for a structured, systematic rehabilitation program in hospitals and municipalities following current guidelines for patients with IC.

Even though international guidelines recommend that all patients with IC are referred to SET as part of the initial rehabilitation [3,4,5], the results of our study indicate that it is far from current practice and confirms previous international research in patients with IC [29,30]. Our results suggest that the lack of a well-designed rehabilitation program including SET in the public rehabilitation departments is one of the barriers against successful rehabilitation of patients with IC. Although, the rehabilitation does not have to consist of walking, not all rehabilitation programs would lead to improved symptoms, as it is essential that a rehabilitation program includes supervised exercise of sufficient dose and length [3,4,5]. There seemed to be consensus among the respondents of our study that a future rehabilitation program should include an initial conversation (including history taking, goal setting etc.), SET, smoking cessation, and patient education. As almost all the vascular surgeons would refer the patients with IC to rehabilitation if it was available, implementing such a program has the potential to bridge the gap between current high-quality evidence on the effects of rehabilitation including SET [14,15,16] and the lack of utilization in clinical practice [13]. In patients with IC in the Netherlands (ClaudicationNet) and osteoarthritis in Denmark, Canada, Australia and China [31,32,33], training health care practitioners in delivering evidence-based treatment is a successful way to implement evidence in clinical practice. Furthermore, a systematic and structured implementation of rehabilitation

including SET as part of everyday clinical practice seems to be cost-effective [12]. Building on these previous experiences and the findings of the current study offers a feasible and attractive way forward to improve the quality of care of patients with IC in Denmark and perhaps to prevent future cardiovascular mortality and morbidity [34].

The vascular surgeons in our study supported rehabilitation of patients with IC and would refer to an evidence-based rehabilitation program if it was available. Surprisingly, only 3 out of 4 of the vascular surgeons agreed that SET should be a cornerstone in the rehabilitation of patients with IC, as recommended by international guidelines [5,6,7]. Around half of the Danish vascular surgeons found SET to be relevant when IC was caused by significant iliac stenosis and just above half found that SET was useful in patients with a maximal walking distance of less than 100 m. According to the literature, these arguments against SET are not valid [4,19,35,36]. This variety in opinions regarding eligible patients with IC could lead to lack of referrals of eligible patients to rehabilitation including SET, because unawareness of the potential positive effects of SET.

Only 1 out of 3 of the municipalities had patients with IC referred from the general practitioner (GP). A Dutch survey among GPs indicated that the GPs underestimate the importance of treatment of IC (including SET) because their focus is on prevention of coronary artery and cerebrovascular diseases [37]. Even though, that study was done in the Netherlands, it could likely be similar in a Danish setting. The GPs are important stakeholders and their lack of focus on treatment of patients with IC may reduce referral to SET and to vascular surgeons. Therefore, it is important to educate GPs alongside vascular surgeons, physiotherapists and other stakeholders in current evidence-based guidelines and engage them in the development and implementation of a structured, systematic rehabilitation program including SET in order to be able to change current clinical practice. Such a program (ClaudicatioNet) has successfully been implemented in the Netherlands, where vascular surgeons, physiotherapists and GPs collaborate in a national integrated care network [31].

### *Strengths and limitations*

An important strength of the study is that national surveys were conducted with high response rates (70%, 98% and 94%), increasing the generalizability of the study findings. Especially, the survey among the public rehabilitation departments is very close to that of census surveys, where the whole target population is enumerated in the study [38]. This is a considerable strength of this study since the risk of sampling errors is negligible.

The survey among the vascular surgeons was based upon prior surveys from The Netherlands [19]. However, the health-care settings of the two countries are not completely identical. Surveys among the Danish municipalities and hospitals were based upon previous surveys regarding rehabilitation for patients with heart diseases [26]. Nevertheless, there is a crucial difference in how well implemented rehabilitation is for those diseases as compared to IC. Since most of the municipalities does not offer rehabilitation including SET, this may result in insufficient mapping of the rehabilitation for patients with IC.

Given the explorative nature of this study a more thorough pre- and pilot testing of the surveys might have minimized the number of free-text comments from the respondents if the question stems and response options were more adequately constructed for the context.

## **Conclusion**

Despite strong recommendations in several international guidelines this survey highlights that rehabilitation, and in particular SET, is still a largely underutilized tool in the management of patients with IC. Dissemination of the clinical recommendations to all relevant stakeholders in the Danish public healthcare system is highly needed. The results of this study strongly emphasize the importance of translating existing research into evidence-based clinical practice in the Danish public healthcare system.

## **Acknowledgement**

The authors would like to thank the Danish Heart Rehabilitation Database (DHRD) [25] for their contribution to the data collection in the Danish rehabilitation departments in the municipalities and

hospitals. Furthermore, we would like to thank all the respondents, who participated in these surveys.

### **Funding**

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors. Outside the current work, Søren T. Skou is currently funded by the Independent Research Fund Denmark (DFF – 6110-00045) and the Lundbeck Foundation.

### **Conflict of interest**

None.

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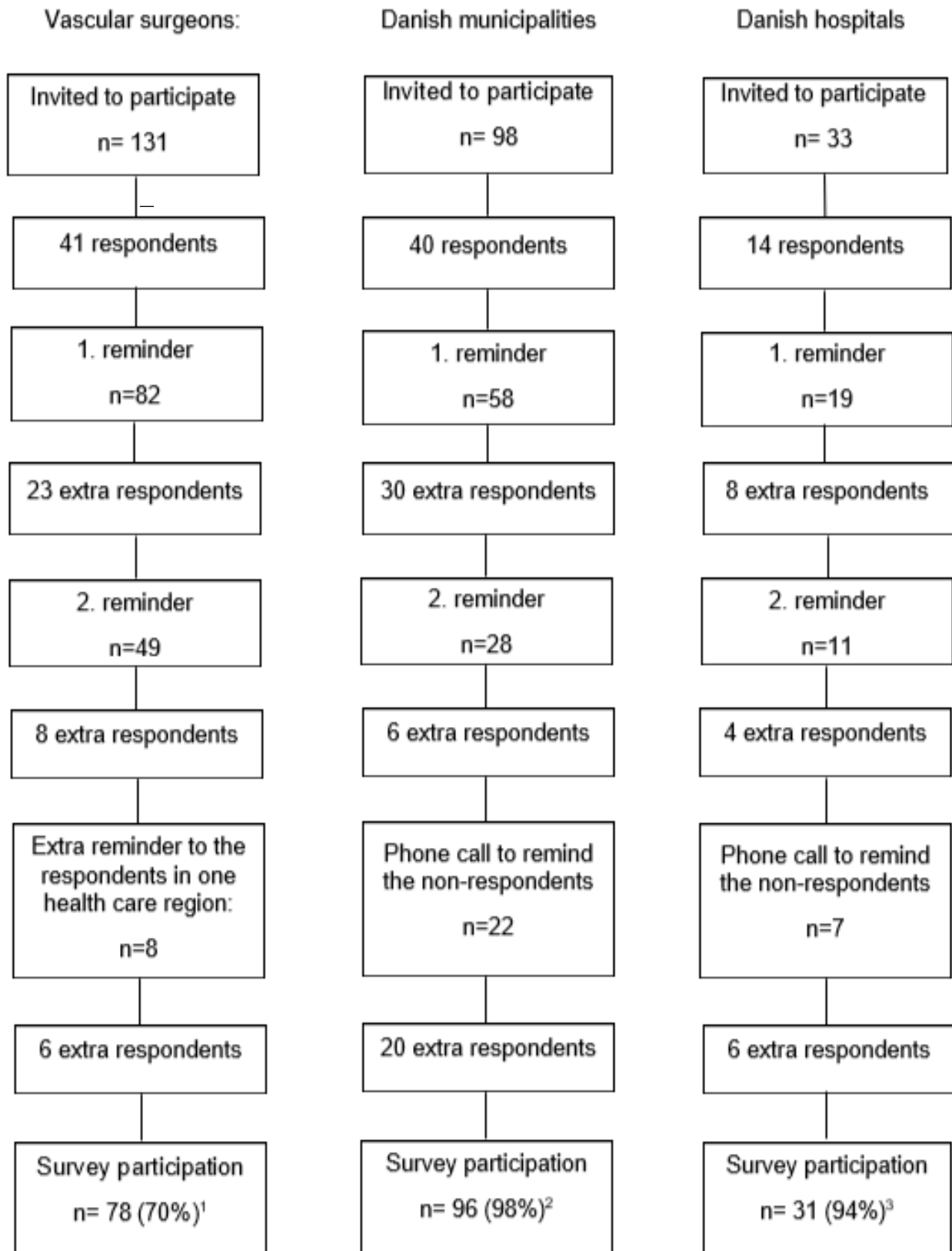
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**Figure 1:** Survey participation among the vascular surgeons, Danish municipalities and hospitals.



<sup>1</sup>: 19 was not eligible to participate, 11 had retired, 8 not working with patients with IC

<sup>2</sup>: One respondent answered on behalf of seven municipalities. The respondent had a coordinating function among seven municipalities regarding rehabilitation of patients with heart diseases.

<sup>3</sup>: One respondent answered on behalf of two hospitals since the two hospitals were connected.

**Table 1:** Respondent characteristics\*

<b>Vascular Surgeons, n= 78</b>	
<b>Age:</b>	
≤40	23 (30%)
41-50	23 (30%)
51-60	14 (18%)
>60	18 (23%)
<b>Gender:</b>	
Male	47 (60%)
Female	31 (40%)
<b>Health care region:</b>	
Capital Region of Denmark	19 (24%)
Region Zealand	6 (8%)
Region of Southern Denmark	26 (33%)
Central Denmark Region	14 (18%)
North Denmark Region	11 (14%)
Not working in a hospital	2 (3%)
<b>Experience as vascular surgeon: (years)</b>	
≤10	30 (39%)
11-20	26 (33%)
21-30	17 (22%)
>30	5 (6%)
<b>No. of patients with IC annually:</b>	
≤ 100	35 (45%)
101-200	21 (27%)
201-300	9 (12%)
301-400	6 (8%)
>400	7 (9%)

<b>Percentage of patients with IC that the vascular surgeons refer to rehabilitation:</b> (n=17) <sup>1</sup> , mean (SD)	34% (37)	
<b>Survey among public rehabilitation departments in municipalities (n=96) and hospitals (n=31)</b>		
	Municipalities	Hospitals
<b>Job position:</b>		
Responsible for the full rehabilitation program for patients with heart diseases in the municipality	18 (19%)	3 (10%)
Responsible for part of the rehabilitation program for patients with heart diseases in the municipality	17 (18%)	5 (16%)
Physiotherapist in the rehabilitation program for patients with heart diseases	39 (41%)	18 (58%)
Other job positions	22 (23%) <sup>2</sup>	5 (16%) <sup>3</sup>
<b>Health care region:</b>		
Capital Region of Denmark	29 (30%)	9 (29%)
Region Zealand	16 (17%)	6 (19%)
Region of Southern Denmark	21 (22%)	7 (23%)
Central Denmark Region	19 (20%)	6 (19%)
North Denmark Region	11 (12%)	3 (10%)

\* n (%) unless otherwise stated; IC=Intermittent Claudication

<sup>1</sup>: n=17, because 17 vascular surgeons referred patients with IC to rehabilitation. The 17 vascular surgeons, who answered that they did refer patients to rehabilitation, were asked how many percentage of their patients they referred.

<sup>2</sup>: Most commonly employees with a coordinator function in the rehabilitation program for patients with heart diseases (n=16), development therapist (n=5).

<sup>3</sup>: Most commonly employees with responsibility for the medical rehabilitation (n=2), development therapist (n=1) and a resource person in the medical rehabilitation team (n=1).

**Table 2:** Current practice among the Danish vascular surgeons (n=78)\*

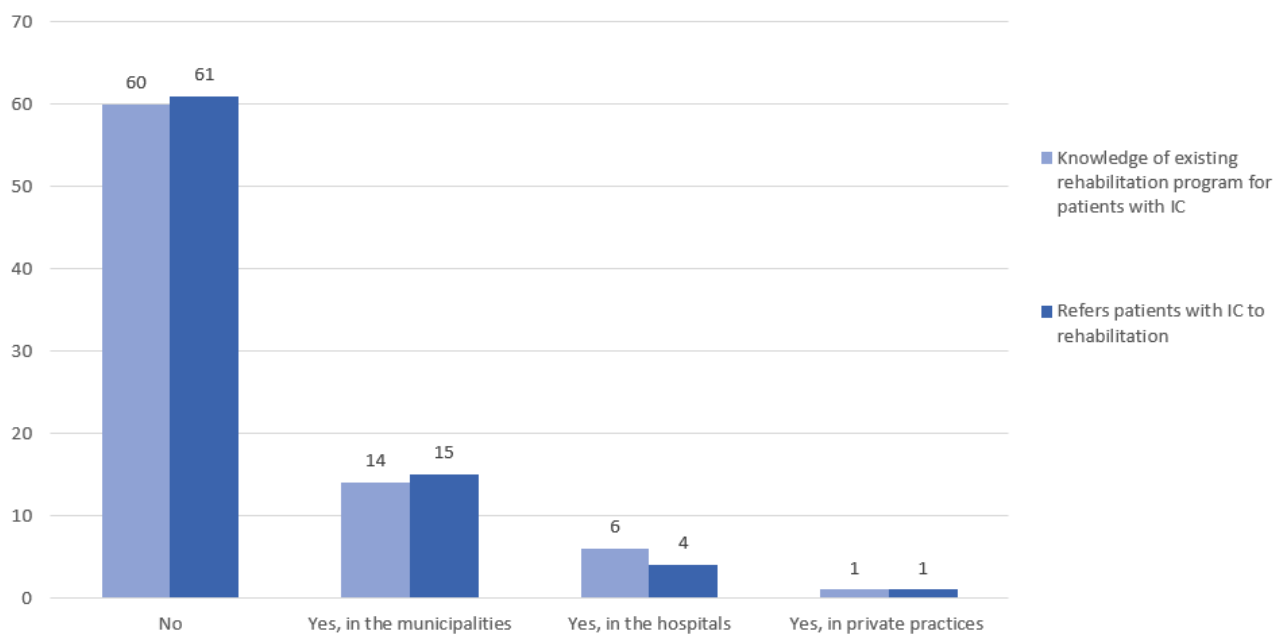
Vascular surgeons	
<b>Treatment to improve walking distance: (n=78)</b>	
Advice to self-administered walking without follow-up	42 (54%)
Advice to self-administered walking with follow-up	55 (71%)
Flyer with information	38 (49%)
Referral to rehabilitation	9 (12%)
Referral to a nurse for lifestyle changes	12 (15%)
Pharmacological treatment	46 (59%)
Surgery	50 (64%)
Walking is not addressed during the consultation	1 (1%)
<b>Determinants for when to offer surgery in patients with IC: (n=71) <sup>1</sup></b>	
Limitations in daily life (LDL)	13 (17%)
Patient-reported walking ability (WA-P)	3 (4%)
Walking ability determined by functional test (WA-V)	0 (0%)
LDL+WA-P+WA-V	8 (10%)
LDL+WA-P	47 (60%)
LDL+ WA-V	0 (0%)
WA-P+WA-V	0 (0%)

\* n (%) unless otherwise stated; IC=Intermittent Claudication

<sup>1</sup>: Missing data from seven respondents, because they believed the evaluation of eligibility for surgery was more complex than indicated by the categories.



**Figure 2:** Knowledge of existing rehabilitation programs for patients with IC and referral pattern by the vascular surgeons (n=78)



The respondent could select more than one response option to the questions E.g. If they knew of rehabilitation in both the municipalities and the hospitals.

**Table 3:** Current practice in the public rehabilitation departments (municipalities n=96, hospitals n=31)\*

	Municipalities	Hospitals
<b>Do you treat patients with IC?</b>		
Yes	57 (59%)	8 (26%)
No	39 (41%)	23 (74%)
<b>How is the rehabilitation program organized? (n=56, n=8) <sup>1</sup></b>		
Same program as people with heart diseases	38 (67%)	8 (100%)
Specialized program for people with IC	8 (14%)	0 (0%)
Free-text comments <sup>2</sup>	10 (18%) <sup>2</sup>	0 (0%)
<b>Number of patients with IC annually:</b>		
Mean (SD) (n=50, n=8) <sup>1</sup>	13 (13)	15 (12)
<b>Who refer patients with IC to your municipality:<sup>1</sup></b>		
The hospital	45 (79%)	
The general practitioner	31 (54%)	
The patient contacts the municipality	10 (18%)	-
Do not know	5 (9%)	
Free-text comments <sup>3</sup>	10 (18%) <sup>3</sup>	
<b>Elements in the rehabilitation:</b> (n=57, n=8) <sup>1</sup>		
Initial conversation	52 (91%)	6 (75%)
SET	53 (93%)	6 (75%)
Patient education	31 (54%)	5 (63%)
Psycho-social intervention	27 (47%)	4 (50%)
Smoking cessation intervention	42 (74%)	4 (50%)
Dietary intervention	39 (68%)	4 (50%)
<b>Organization of the rehabilitation:</b>		
Mean (SD), (n=57, n=8) <sup>1</sup>		
Number of weeks	11 (7)	9 (3)
Times pr. week	2 (0)	2 (0)
Length of each session in minutes	62 (14)	69 (14)
Percentage that is supervised walking	24 (26)	20 (14)
<b>Number of treadmills available:</b>		
Mean (SD) (n=55, n=6) <sup>1</sup>	2 (2)	1 (0)
<b>Competencies in the rehabilitation team:</b> (n= 56, n=7) <sup>1</sup>		
Specific IC competencies	5 (9%)	2 (29%)

General vascular diseases competencies	45 (80%)	4 (57%)
No specific IC competencies	1 (2%)	1 (14%)
Do not know	3 (5%)	0 (0%)
Free-text comments	2 (4%)	0 (0%)

\* n (%) unless otherwise stated; IC=Intermittent Claudication

SET: Supervised exercise therapy

<sup>1</sup>: Results are only from the respondents who respond that they treat patients with IC (municipalities n=57, hospitals n=8).

<sup>2</sup>: Most commonly, individually planned rehabilitation (n=6) or integrated in programs for other diseases (n=4)

<sup>3</sup>: Most commonly patients with IC is referred with IC as a secondary diagnosis, n=7

**Table 4:** Opinions on optimal rehabilitation by vascular surgeons (n=78), Danish municipalities (n=57)<sup>1</sup> and Danish hospitals (n=8)<sup>1\*</sup>

	Vascular surgeons	Municipalities	Hospitals
<b>Elements in the rehabilitation:</b>			
Individual initial conversation	61 (78%)	50 (88%)	7 (88%)
SET	74 (95%)	54 (95%)	7 (88%)
Patient education	68 (87%)	44 (77%)	7 (88%)
Psycho-social intervention	30 (39%)	41 (72%)	6 (75%)
Smoking cessation intervention	74 (95%)	50 (88%)	6 (75%)
Dietary intervention	43 (55%)	46 (81%)	6 (75%)
<b>Organization of the SET:</b>			
Supervised	47 (60%)	47 (83%)	5 (63%)
Non-supervised	3 (4%)	12 (21%)	0 (0%)
General physical exercise	22 (28%)	34 (60%)	5 (63%)
Primarily walking	34 (44%)	29 (51%)	4 (50%)
In groups	38 (49%)	47 (83%)	5 (63%)
Individual	14 (18%)	20 (35%)	0 (0%)
Tele rehabilitation	20 (26%)	15 (26%)	1 (13%)
Don't know	1 (1%)	1 (2%)	1 (13%)
<b>Content of SET:</b>			
Supervised walking on a treadmill	53 (68%)	38 (67%)	4 (50%)
Supervised alternative training (e.g. cycling, strength training)	38 (49%)	43 (75%)	4 (50%)
Lifestyle interventions	70 (90%)	45 (79%)	3 (38%)
Assessment of medication usage	39 (50%)	18 (32%)	0 (0%)
Assessment of medication adherence	29 (37%)	17 (30%)	1 (13%)
Assessment of medication side effects	22 (28%)	16 (28%)	1 (13%)
Assessment of blood glucose (Diabetes type 2)	18 (23%)	17 (30%)	0 (0%)
Don't know	-	8 (14%)	3 (43%)
<b>Awareness of existing National clinical guideline for patients with IC: (n=96, n=31)</b>			
Yes	-	39 (41%)	10 (30%)
No	-	19 (20%)	10 (30%)
Don't know	-	37 (39%)	11 (33%)

\* n (%) unless otherwise stated; IC: Intermittent Claudication

SET: Supervised exercise therapy

<sup>1</sup>: Was only answered by respondents from the municipalities and hospitals that treated patients with Intermittent Claudication.

**Table 5:** Danish vascular surgeons' opinions on when to offer SET (n=78)\*

Vascular surgeons	
<b>When to offer SET: (n=75)</b>	
To everyone regardless of stage	25 (32%)
To asymptomatic patients	3 (4%)
To patients with pain during function/IC	52 (67%)
To patients with pain at rest	16 (21%)
To patients with ischemic wounds and gangrene	10 (13%)
To patients not suitable for operation	27 (35%)
Before operation	33 (42%)
After operation	35 (45%)
Should not be offered	0 (0%)
<b>Agreement on statement regarding the use of SET: (n=74)</b>	
SET is more effective than single walking advice	66 (85%)
In addition to cardiovascular risk management, SET should be the primary treatment in Intermittent Claudication	59 (76%)
SET in the municipalities or private sector is as effective as hospital-based SET	41 (53%)
Continuation of SET is useful if patients do not improve in the three first months of treatment	35 (45%)
SET is useful in patients with a maximal walking distance of <100 m.	44 (56%)
SET is useful in patients older than 80 years	57 (73%)
SET is useful in patients who underwent angioplasty	53 (68%)
SET is useful in patients who have IC caused by a significant Iliac stenosis	36 (46%)
SET is useful in patients with IC and not-decompensated chronic heart failure	52 (67%)
SET is useful in patients with IC and chronic pulmonary condition	50 (64%)
In critical limb ischemia, SET is useful in addition to angioplasty	40 (51%)
In critical limb ischemia, SET is useful in addition to revascularization	43 (55%)
<b>Would you refer to standardized rehabilitation for patients with IC, if it was available: (n=77)</b>	
Yes	75 (96%)
No	2 (3%)

\* n (%) unless otherwise stated; IC= Intermittent Claudication

SET= Supervised exercise therapy

## Appendix 1: Survey 1: the Danish vascular surgeons

**Spørgsmål vedrørende dig som informant:**

**1: Alder:**

—

**2: Køn:**

☐ Mand

☐ Kvinde

**3: I hvilken region ligger det sygehus arbejder du på:**

☐ Region Hovedstaden

☐ Region Sjælland

☐ Region Syddanmark

☐ Region Midtjylland

☐ Region Nordjylland

☐ Jeg arbejder ikke på et sygehus

**4: Hvor mange år har du cirka arbejdet med patienter med Claudicatio Intermittens:**

—

**5: Hvor mange patienter med Claudicatio Intermittens ser du cirka om året:**

—

**Spørgsmål vedr. din nuværende praksis i forhold til henvisning til rehabiliteringsforløb:**

I det følgende vil der spørges ind til elementer indenfor rehabilitering. Der opereres med rehabilitering ud fra følgende definition:

”Rehabilitering kan defineres som en række indsatser, der støtter det enkelte menneske, som har eller er i risiko for at få nedsat funktionsevne, i at opnå og vedligeholde bedst mulig funktionsevne, herunder at fungere i samspil med det omgivende samfund”.

Rehabilitering har til formål at forbedre patientens funktionsniveau, fjerne eller mindske

aktivitetsrelaterede symptomer, minimere graden af invaliditet, og gøre det muligt for patienten at vende tilbage til en personligt tilfredsstillende rolle i samfundet.

Den samlede rehabiliteringsindsats omfatter såvel non-farmakologiske interventioner som fx patientuddannelse og fysisk træning, som sikring af korrekt medicinsk behandling og medicinsk risikofaktorkontrol.

Det er blevet anbefalet, at rehabilitering etableres som integrerede behandlingstilbud med individuelt tilrettelagte og sammenhængende rehabiliteringsforløb.

#### **6: Viderehenviser du patienter med Claudicatio Intermittens til rehabiliteringsforløb?**

**(sæt gerne flere krydser)**

- ☐ Ja, til rehabiliteringsforløb i kommunen
- ☐ Ja, til rehabiliteringsforløb i privat praksis
- ☐ Ja, til rehabiliteringsforløb på sygehus
- ☐ Nej
- ☐ Andet: \_\_\_\_\_

#### **7: Hvor mange procent af dine patienter med Claudicatio Intermittens viderehenviser du cirka årligt?**

\_\_\_\_\_

#### **8: Hvad tilbyder du på nuværende tidspunkt patienter med Claudicatio Intermittens ift. forbedring af gangfunktion?**

**(sæt gerne flere krydser)**

- ☐ Anbefaling om gangtræning uden opfølgning
- ☐ Anbefaling om gangtræning med opfølgning
- ☐ Flyer med information om deres muligheder
- ☐ Henviser til genoptræning
- ☐ Tilknytning til projektsygeplejersker, der hjælper med livstilsændringer herunder forbedring af gangfunktion
- ☐ Medicinsk behandling med henblik på forbedring af gangfunktion
- ☐ Revaskularisering
- ☐ Jeg taler ikke med patienterne om gangfunktionen
- ☐ Andet: \_\_\_\_\_

**9: Hvad tilbyder du patienter med Claudicatio Intermittens ift. rygestop?**

(sæt gerne flere krydser)

- ☐ Mundtlig anbefaling om rygestop
- ☐ Mundtlig anbefaling om at kontakte egen læge ift. rygestopintervention
- ☐ Flyer om rygestop
- ☐ Viderehenviser til rygestopintervention i sygehus regi
- ☐ Viderehenviser til rygestopintervention i kommunalt regi
- ☐ Tilknytning til projektsygeplejersker, der bl.a. hjælper med rygestop
- ☐ Jeg taler ikke med patienterne om rygestop
- ☐ Andet: \_\_\_\_\_

**10: Hvad tilbyder du patienter med Claudicatio Intermittens for at give dem den bedste forståelse for deres lidelse og hvad der kan gøres ved den?**

(sæt gerne flere krydser)

- ☐ Jeg bruger tid på at sætte patienten godt ind i deres lidelse/situation
- ☐ Tilknytning til sygeplejerske på afdelingen, der følger op på råd og vejledning vedr. livsstilsændringer
- ☐ Viderehenviser til patientuddannelse i sygehus regi
- ☐ Viderehenviser til patientuddannelse i kommunalt regi
- ☐ Viderehenviser til patientuddannelse i privat regi
- ☐ Viderehenviser til patientuddannelse hos egen læge
- ☐ Jeg gør ikke noget for at patienten får en bedre forståelse af deres lidelse
- ☐ Andet: \_\_\_\_\_

**11: Hvilke af følgende determinanter for operation er gældende for dig ved invaliderende Claudicatio Intermittens?**

(sæt kun et kryds)

**Forkortelser:**

**LDL:** begrænsninger i daglig livet

**WA-P:** patient rapporteret gangevne

**WA-V:** funktionel gangtest resultater

- ☐ LDL+WA-P+WA-V
- ☐ LDL
- ☐ LDL+WA-P
- ☐ LDL+WA-V
- ☐ WA-P+WA-V
- ☐ WA-P
- ☐ WA-V



☐ Evt. kommentar: \_\_\_\_\_

**12: Kender du til eksisterende forløb særligt tilrettelagt for patienter med Claudicatio Intermittens?**

(sæt gerne flere krydser)

- ☐ Ja, i sygehusets rehabiliteringsafdeling  
☐ Ja, i privat praksis  
☐ Ja, i kommunale rehabiliteringsafdelinger  
☐ Nej  
☐ evt. kommentar: \_\_\_\_\_

**Hvis du kender til et forløb, uddyb da gerne hvad du kender til:**

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**Spørgsmål vedr. din holdning i forhold til fremtidig rehabiliteringsforløb:**

I det følgende stilles der spørgsmål vedr. din professionelle holdning til forskellige elementer i rehabilitering ud fra følgende definition (samme som før):

”Rehabilitering kan defineres som en række indsatser, der støtter det enkelte menneske, som har eller er i risiko for at få nedsat funktionsevne, i at opnå og vedligeholde bedst mulig funktionsevne, herunder at fungere i samspil med det omgivende samfund”.

Rehabilitering har til formål at forbedre patientens funktionsniveau, fjerne eller mindske aktivitetsrelaterede symptomer, minimere graden af invaliditet, og gøre det muligt for patienten at vende tilbage til en personligt tilfredsstillende rolle i samfundet.

Den samlede rehabiliteringsindsats omfatter såvel non-farmakologiske interventioner som fx patientuddannelse og fysisk træning, som sikring af korrekt medicinsk behandling og medicinsk risikofaktorkontrol.

Det er blevet anbefalet, at rehabilitering etableres som integrerede behandlingstilbud med individuelt tilrettelagte og sammenhængende rehabiliteringsforløb.

**13: Hvilke elementer tænker du bør indgå i et rehabiliteringsforløb til patienter med Claudicatio Intermittens?**

(sæt gerne flere krydser)

- ☐ Individuelle indledende samtaler  
☐ Fysisk træning

- ☐ Patientuddannelse
- ☐ Psykosocial indsats (f.eks. rettet imod isolation pga. smerter og træthed, stress eller bekymringer)
- ☐ Rygestopintervention
- ☐ Kostintervention og ernæringsindsats
- ☐ Andet: \_\_\_\_\_

#### **14: Hvordan tænker du den fysiske træning skal tilrettelægges?**

(sæt gerne flere krydser)

**Superviseret:** under vejledning af en fagperson

**Generel træning:** træning af hele kroppen med fokus på flere elementer fx. styrketræning, kredsløbstræning og balancetræning.

- ☐ Superviseret
- ☐ Ikke-superviseret
- ☐ Generel fysisk træning
- ☐ Primært gangtræning
- ☐ Holdtræning
- ☐ Individuel træning
- ☐ Telerehabilitering (rehabilitering med brug af informations- og kommunikationsteknologier. F.eks. rehabilitering i form af træning, vurdering, monitorering, uddannelse, konsultation, rådgivning over distance med brug af ny teknologi fx skridttæller eller Ipad)
- ☐ Ved ikke
- ☐ Andet: \_\_\_\_\_

#### **15: Hvad tænker du rehabiliteringsprogrammet ellers kan indeholde?**

(sæt gerne flere krydser)

- ☐ Superviseret gangtræning på løbebånd
- ☐ Livsstilsinterventioner (rygestop, kostvejledning m.m.)
- ☐ Superviseret træning (f.eks. cykling og styrketræning)
- ☐ Kontrol af medicin
- ☐ Kontrol af medicin adherence
- ☐ Vurdering af medicinske bivirkninger
- ☐ Måling af glykoseniveauet i blodet (i tilfælde af Diabetes type II)
- ☐ Andet: \_\_\_\_\_

**16: Hvornår bør et rehabiliteringsforløb tilbydes til patienter med Claudicatio Intermittens?  
(sæt gerne flere krydser)**

- ☐ Bør tilbydes alle uanset stadie
- ☐ Når de er asymptomatiske (Fontaine grad I)
- ☐ Funktionssmerter/Claudicatio Intermittens (Fontaine grad II)
- ☐ Hvilesmerter (Fontaine grad III)
- ☐ Iskæmiske sår og gangræn (Fontaine grad IV)
- ☐ Hvis de ikke er egnet til operation
- ☐ Før operation
- ☐ Efter operation
- ☐ Bør ikke tilbydes
- ☐ Andet: \_\_\_\_\_

**17: Udtalelser vedrørende brugen af superviseret træning til patienter med Claudicatio Intermittens:**

**I dette spørgsmål skal du sætte kryds i de udtalelser du er enig i:**

**(sæt gerne flere krydser)**

**Forkortelse:**

**SET: superviseret træning (indeholder primært superviseret gangtræning)**

- ☐ SET er mere effektivt en enkeltstående råd om gangtræning
- ☐ Kardiovaskulær risikohåndtering og SET bør være den primære behandling for patienter med Claudicatio Intermittens
- ☐ SET i kommunalt eller privat klinik regi er ligeså effektiv som en specialiseret indsats på hospitalerne
- ☐ Hvis patienten ikke forbedre sin gangdistance i løbet af de første 3 måneder, bør SET fortsat tilbydes
- ☐ SET er relevant hos patienter hvis maximale gangdistance er under 100 m
- ☐ SET er relevant selvom patienten er over 80 år
- ☐ SET er relevant for patienter som har fået angioplastik
- ☐ SET er relevant hvis Claudicatio Intermittens skyldes betydelig arterie Iliacusforsnævring
- ☐ SET træning er relevant hos patienter med stabilt kronisk hjertesvigt
- ☐ SET er relevant hos patienter der udover Claudicatio Intermittens lider af KOL
- ☐ Ved kritisk iskæmi er SET relevant som supplement til angioplastik
- ☐ Ved kritisk iskæmi er SET relevant som supplement til revaskularisering
- ☐ Evt. kommentar \_\_\_\_\_

**18: Vil du henviser til et standardiseret rehabiliteringsforløb vedr. Claudicatio Intermittens, hvis et sådant fandtes?**

☐ Ja

☐ Nej

**Begrund gerne dit svar:**

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**Du er nu færdig med spørgeskemaet.**

**Husk at trykke afslut (X).**

**Tusind tak for hjælpen!!!**

## **Appendix 2: Survey 2 and 3: Physical therapy departments at Danish hospitals and municipalities**

### **1. Er du den person, som det elektroniske spørgeskema oprindeligt var sendt til?**

- ☐ Ja
- ☐ Nej

### **2. Hvilken funktion har du i forhold til fysisk træning af hjertesygge borgere?**

- ☐ Leder/chef med ansvar for det samlede rehabiliteringstilbud rettet mod hjertesygge borgere
- ☐ Leder/chef med ansvar for en del af det samlede rehabiliteringstilbud rettet mod hjertesygge borgere
- ☐ Fysioterapeut i rehabiliteringstilbuddet rettet mod hjertesygge borgere
- ☐ Andet, uddyb venligst \_\_\_\_\_

### **Spørgsmål vedrørende rehabilitering af borgere med Claudicatio Intermittens.**

De følgende spørgsmål er med henblik at kortlægge de nuværende rehabiliteringstilbud til borgere med Claudicatio Intermittens i den offentlige sektor, samt dine anbefalinger til udformning af et fremtidigt rehabiliteringsforløb.

Med Claudicatio Intermittens menes der ”Vindueskiggersyndrom”. Det er en lidelse hvor man pga. forsnævninger i underekstremiteternes arterier, får smerter i forbindelse med gang. Disse smerter ophører/mindskes efter en kort pause, hvorefter man kan gå videre igen.

### **3. Behandler I borgere med Claudicatio Intermittens i jeres dagligdag?**

- ☐ Ja
- ☐ Nej

If no, they jump to question 16

### **4. Hvor mange borgere med Claudicatio Intermittens behandler I årligt, cirka?**

\_\_\_\_\_

**5. Hvordan tilrettelægger I rehabiliteringstilbud målrettet borgere med Claudicatio Intermittens?**

☐ De får de samme rehabiliteringstilbud som hjertepatienter

☐ De får et særligt rehabiliteringstilbud

☐ Andet, uddyb venligst \_\_\_\_\_

If they answer response option 1, they get question 6 and then jump to 11.

**6. Indgår følgende komponenter i jeres rehabiliteringstilbud til borgere med Claudicatio Intermittens? (Sæt gerne flere krydser)**

	Ja, individuelt	Ja, på hold	Ja, telebehandling	Andet, uddyb venligst	Nej
Indledende samtale	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____	<input type="checkbox"/>
Fysisk træning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____	<input type="checkbox"/>
Patientuddannelse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____	<input type="checkbox"/>
Psykosocial indsats	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____	<input type="checkbox"/>
Rygestop-intervention	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____	<input type="checkbox"/>
Kostintervention og ernæringsindsats	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____	<input type="checkbox"/>

**Du har i det foregående spørgsmål svaret, at der tilbydes fysisk træning til borgere med Claudicatio Intermittens.**

**Du bedes venligst uddybe dette i følgende spørgsmål:**

**7. Over hvor mange uger foregår den superviserede træning?** \_\_\_\_\_

**8. Hvor mange gange om ugen?** \_\_\_\_\_

**9. Hvor lang er træningssessionen typisk i minutter?** \_\_\_\_\_

**10. Hvor stor en procentdel af den fysiske træning er superviseret gangtræning på løbebånd?**

\_\_\_\_\_

**11. Hvor mange gangbånd har I til rådighed: \_\_\_\_\_**

**12. Hvor stor en procentdel er gangtræning andet steds, da I ikke har gangbånd til rådighed?**  
\_\_\_\_\_ (question only activated if they answer 0 in question 11)

**13. Du har i et foregående spørgsmål svaret, at der tilbydes patientuddannelse til borgere med Claudicatio Intermittens. Du bedes venligst uddybe hvad undervisningen går ud på: (Sæt gerne flere kryds)** (question only activated if they answer yes to patient education in question 6)

- ☐ Generel information vedr. Claudicatio Intermittens ætiologi
- ☐ Effekt af gangtræning og fysisk aktivitet
- ☐ Self-management strategier (rygestop, kostvejledning ect.)
- ☐ Identifikation og adressering af personlige barrierer ift. fysisk aktivitet
- ☐ Individuel målsætning (f.eks. med udgangspunkt i "Den motiverende samtale")
- ☐ Mulige hjælpemidler til monitorering (f.eks. skridttæller eller anden form for monitorering)
- ☐ Andet, uddyb venligst \_\_\_\_\_

**14. Hvorfra henvises borgere med Claudicatio Intermittens?** (question only asked to the physical therapy departments in the Danish municipalities)

- ☐ Henvisning fra sygehus
- ☐ Henvisning fra praktiserende læge
- ☐ Personer med Claudicatio Intermittens henvender sig selv til visitator
- ☐ Andet, uddyb venligst \_\_\_\_\_
- ☐ Ved ikke

**15. Hvilke kompetencer findes i træningsteamet for at kunne varetage behandlingen af borgere med Claudicatio Intermittens?**

- ☐ Specifikke kompetencer rettet imod Claudicatio Intermittens
- ☐ Generelle kompetencer rettet imod diverse kredsløbsproblematikker
- ☐ Der er ikke nogen med kompetencer indenfor Claudicatio Intermittens
- ☐ Andet, uddyb venligst \_\_\_\_\_
- ☐ Ved ikke

**16. Er kommunen bekendt med anbefalingerne i den nationale behandlingsvejledning til borgere med Claudicatio Intermittens?**

- ☐ Ja
- ☐ Nej
- ☐ Ved ikke

**17. Vil din kommune være interesseret i at arbejde med et standardiseret evidensbaseret rehabiliteringsforløb til patienter med Claudicatio Intermittens, hvis et sådant bliver udviklet?**

- ☐ Ja, vi vil gerne høre mere
- ☐ Nej, vi føler at vi lever op til anbefalingerne
- ☐ Nej, det er ikke en patientgruppe vi beskæftiger os med
- ☐ Ved ikke

**Eventuelle kommentarer** \_\_\_\_\_

Question 18, 19 and 20 are only activated if they treat patients with IC. Yes, in question 3.

**18. Hvilke elementer tænker du bør indgå i et rehabiliteringsforløb til borgere med Claudicatio Intermittens? (Sæt gerne flere krydser)**

- ☐ Individuelle indledende samtaler
- ☐ Fysisk træning
- ☐ Patientuddannelse
- ☐ Psykosocial indsats (f.eks. rettet imod isolation pga. smerter og træthed, stress eller bekymringer)
- ☐ Rygestop intervention
- ☐ Kostintervention og ernæringsindsats
- ☐ Andet, uddyb venligst \_\_\_\_\_
- ☐ Ved ikke

**19. Hvordan tænker du den fysiske træning skal tilrettelægges til borgere med Claudicatio Intermittens? (Sæt gerne flere krydser)**

- ☐ Superviseret
- ☐ Ikke-superviseret
- ☐ Generel fysisk træning
- ☐ Primært gangtræning
- ☐ Holdtræning
- ☐ Individuel træning



- ☐ Telerehabilitering
- ☐ Andet, uddyb venligst \_\_\_\_\_
- ☐ Ved ikke

**20. Hvad tænker du, at rehabiliteringsprogrammet ellers kan indeholde til borgere med Claudicatio Intermittens? (Sæt gerne flere krydser)**

- ☐ Superviseret gangtræning
- ☐ Livsstilsinterventioner
- ☐ Superviseret træning (f.eks. Cykling og styrketræning)
- ☐ Kontrol af medicin
- ☐ Kontrol af medicin adherence/compliance
- ☐ Vurdering af medicinske bivirkninger
- ☐ Måling af glukoseniveau i blodet (ved Diabetes type II)
- ☐ Andet, uddyb venligst \_\_\_\_\_
- ☐ Ved ikke

**Uddybende kommentarer**

Du er nu ved at være færdig med spørgeskemaet om fysisk træning i din kommune. Som afslutning vil vi bede dig om at overveje, om der er nogle oplysninger eller udfordringer ved fysisk træning, som vi ikke har fået belyst tilstrækkeligt i de stillede spørgsmål.

**21. Her kan du komme med uddybende kommentarer til den fysiske træning, som tilbydes hjertesygge borgere og borgere med Claudicatio Intermittens i din kommune.**

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