



# Annual Report 2021



**GLA:D**<sup>®</sup>  
DENMARK

## **GLA:D® Denmark Annual Report 2021**

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# GLA:D<sup>®</sup> Annual report 2021

## GLA:D<sup>®</sup> Denmark Team

In 2021 we all had to recover after the lock down and the COVID-19 pandemic. GLA:D<sup>®</sup> has also faced challenges, both in Denmark and internationally. In this report you can read about the status of GLA:D<sup>®</sup>, results from the GLA:D<sup>®</sup> registry in Denmark as well as research activities and international collaboration.

GLA:D<sup>®</sup> represents evidence-based treatment programs for knee/hip osteoarthritis or ongoing/recurrent back pain. Key elements in GLA:D<sup>®</sup> are patient education and supervised exercise to increase self-management. The elements of GLA:D<sup>®</sup> are constantly in development and based on newest research and clinical guidelines in Denmark and internationally.

GLA:D<sup>®</sup> has been developed at the University of Southern Denmark in collaboration with well-known researchers, patients and clinicians. GLA:D<sup>®</sup> is implemented in a range of other countries e.g. Canada, Australia, China, Switzerland, New Zealand, Austria, Germany and Ireland. All partner countries are part of the GLA:D<sup>®</sup> International Network (GIN), collaborating on research and development of GLA:D<sup>®</sup>.

Enjoy reading the report!



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# What is GLA:D®?



## Contents GLA:D®



Patient education  
2 x 1—1½ hour



Supervised exercises  
6-8 weeks (2 times a week)

## Access to GLA:D®



Self-referral to a GLA:D®-unit



Referral from general practitioner or specialist

GLA:D® for knee/hip osteoarthritis and GLA:D® Back are targeting people with knee/hip osteoarthritis and ongoing or recurrent episodes of back pain, respectively.

### GLA:D® consists of:

- 1) An initial consultation with physical examination, functional tests, assessment of level of exercises and registration in the national database.
- 2) Two sessions of patient education focusing on knowledge of knee/hip osteoarthritis or back problems, risk factors, causes of pain, purpose of exercises, recommendations and management of pain.
- 3) Individually tailored supervised group training twice a week for 6-8 weeks.
- 4) A final consultation with evaluation, functional tests and focus on topics such as continuing training.

### Access to GLA:D®

Patients with knee/hip osteoarthritis or back pain can access GLA:D® via

- referral from a general practitioner,
- referral from a specialist,
- own inquiry to a GLA:D® clinic,
- referral via health insurance company,
- enrolment in municipal setting.

### Aim of GLA:D®

GLA:D® aims to support implementation of recommendations from national and international clinical guidelines.

The overall objective of GLA:D® for knee/hip osteoarthritis is that

- all patients with osteoarthritis have equal access to evidence-based treatment irrespective of place of residence or financial situation,
- surgery should only be considered when non-operative treatment does not give satisfactory results.

The overall objective of GLA:D® Back is that

- patients learn to manage their pain through exercise and increased knowledge about the problem,
- all patients, regardless of residence, must be able to be offered patient education and exercise based upon clinical guidelines.

# Distribution of GLA:D®

Clinicians are trained to deliver GLA:D® at a 2-day course held by SDU, and only certified clinicians can offer GLA:D®. This ensures that the content of the patient education and exercise therapy is standardised across all GLA:D® providers.

In 2013 - 2021, SDU held 22 GLA:D® knee/hip osteoarthritis courses for a total of 1429 clinicians, and in the period 2017 to 2021, 15 GLA:D® Back courses for 712 clinicians. Mainly physiotherapists offer GLA:D®. Chiropractors are also trained in GLA:D® Back and comprise 10% of the course participants.

In 2021, 281 units were offering GLA:D® for knee/hip osteoarthritis and 82 units were offering GLA:D® Back. The number of units offering GLA:D® for knee/hip osteoarthritis has been relatively stable since 2016, however, with a decrease in the period during the COVID-19 pandemic. The number offering GLA:D® Back has more than halved during the COVID-19 pandemic compared to the 186 units running GLA:D® Back during 2018-2019.

In 2021, 21 municipalities were offering GLA:D® for knee/hip osteoarthritis and 5 municipalities were offering GLA:D® Back. 2 municipalities were offering GLA:D® to both target groups.

## Patient participation in GLA:D®

79% of the knee and hip patients participated in both education sessions, and correspondingly, 81% in a minimum of 10 out of 12 exercise sessions. 74% of the back patients participated in both education sessions, and 76% in at least 10 out of 16 exercise sessions.

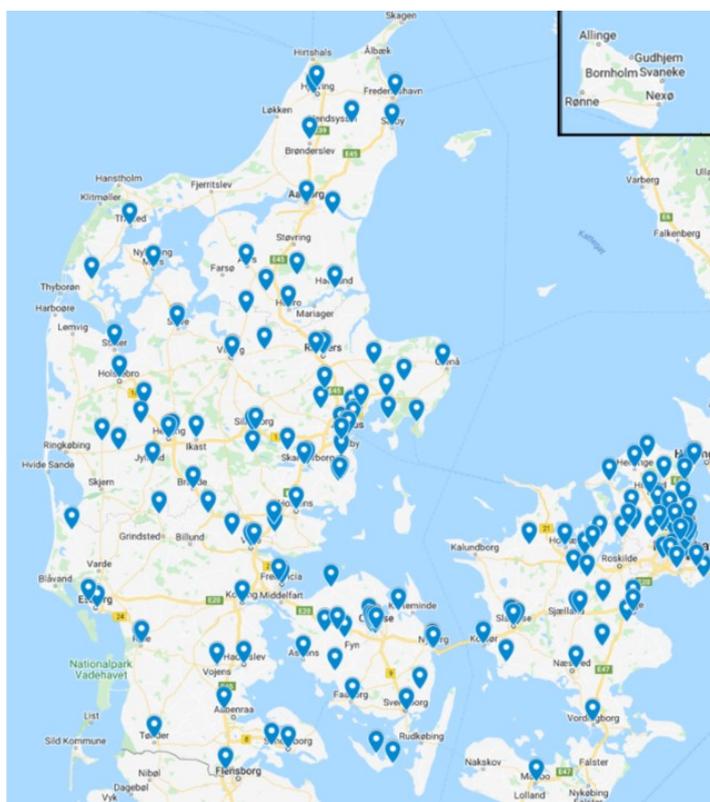
## Great satisfaction with GLA:D®

3 out of 4 knee/hip patients and 8 out of 10 back patients state that they are very or very highly satisfied with the GLA:D® intervention.



Units offering GLA:D® for knee/hip osteoarthritis

\* Blue and yellow dots indicate several clinics

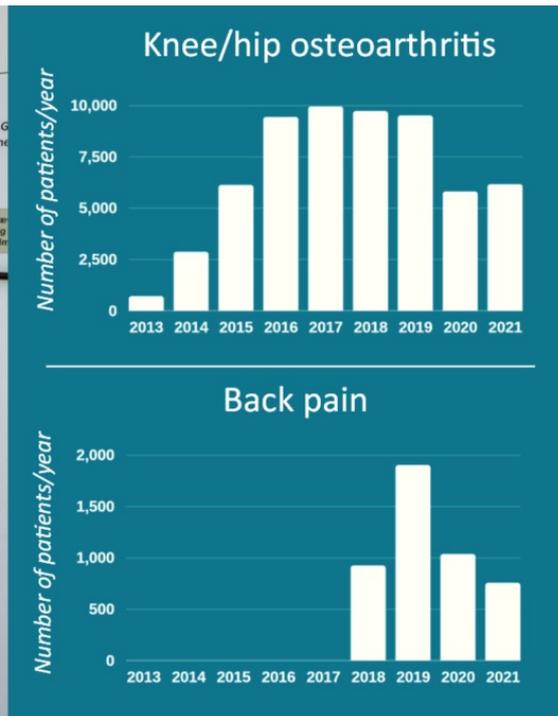


Units offering GLA:D® Back

# Who participates in GLA:D®?



Photo: © GLA:D®



## GLA:D® for knee/hip osteoarthritis

Over 60,000 persons with knee or hip osteoarthritis have attended a GLA:D® program. The number of annual participants has been fairly stable at around 10,000 people since 2016, except during the period of COVID-19 where the number has been lower (2020 - 2021). 70% of the participants are women. The average age is 65 years, and 75% and 64% of the knee and hip patients are overweight, respectively. 2 of 3 have other diseases e.g. hypertension or high cholesterol level, heart-disease, lungdisease, diabetes, osteoporosis or metabolic disorder. 1 of 3 report back pain.

Most participants have problems with the knee, and fewer have problems with the hip (73% vs. 27%). About half of both knee and hip patients have had symptoms for more than a year when starting GLA:D®, and 27% and 3% of the knee and hip patients state that they have previously had surgery in the current joint, respectively. At baseline the pain level is on average 4.7 (0-10), and 61% of knee patients and 65% of hip patients report taking painkillers.

## GLA:D® Back

The number of annual participants in GLA:D® Back has been lower in 2020 and 2021 compared to the first years after initiating GLA:D® Back in 2018. In total 4,613 persons have attended GLA:D® Back. 2 of 3 are women and the average age is 58 years.

59% have had back pain for more than a year. At baseline the pain level is on average 5.4 (0-10), and 57% state taking painkillers. 7 of 10 participants in GLA:D® Back have other diseases and 7 of 10 participants received other treatment for their back problem the month before starting a GLA:D® Back program. On average, participants have had 6.9 sick days due to back pain in the last 3 months before entering the GLA:D® Back program.

## GLA:D® clinical registers

Patient benefit in the GLA:D® program is monitored in clinical registers. Clinicians enter data at the start and end of the intervention, and patients fill out questionnaires at the beginning, after 3 and 12 months, and additionally at 6 months for the back patients. The registers provide continuous monitoring of the program and offer unique opportunities for research into treatment delivered in the primary sector.

# Results—GLA:D® knee/hip



## Results after GLA:D®

	Knee	Hip
Pain 	- 28 %	- 21 %
Medication 	- 31 %	- 23 %
Walking speed 	+ 7 %	+ 7 %
Quality of life 	+ 13 %	+ 10 %

### Less pain

Immediately after the GLA:D® course, the average knee/hip pain intensity decreases by 28% (from 4.8 to 3.4 (0-10)) for the knee patients and by 21% (from 4.7 to 3.7 (0-10)) for the hip patients. One year after starting the GLA:D® program, the average reduction in pain intensity is maintained. The proportion with pain at night drops from 39% to 24% for the knee patients and from 51% to 38% for the hip patients, which is maintained at one year.

### Use of pain medication decreases

Immediately after the GLA:D® course, the proportion who have reported taking painkillers within the last 2 weeks drops from 61 to 44% for the knee patients and from 65 to 50% for the hip patients. Respectively, 42 and 39% of the knee and hip patients report having a lower use of painkillers than before the GLA:D® course, respectively and similar results are seen after one year.

### Better physical function

Walking speed increases on average by 7% from 1.5 m/sec before the GLA:D® course to 1.6 m/sec immediately after the GLA:D® course for both knee and hip patients. Physical function is also

measured via the ability to rise from sitting in 30 sec. (Chair Stand Test). The average number of rises increases by 17% from 12 to 14. About 10% of the participants in GLA:D® complete the Single Leg Hop Test. Average distance the patient jumped in most affected side increased from 39 cm at baseline to 52 cm after the GLA:D® program for the knee patients and from 42 cm to 54 cm for the hip patients.

### Higher quality of life

Immediately after GLA:D®, the average quality of life related to the knee/hip measured with the KOOS/HOOS QOL subscale is improved by 13% for the knee patients (from 46 to 52) and 10% for the hip patients (from 48 to 53). One year after entering GLA:D®, there is an improvement of 19% and 21% for the knee and hip patients compared to before the course, respectively.

### Fewer are on sick leave

Among knee patients who have not received a joint replacement surgery during the follow-up period, the proportion who state that they have been on sick leave due to their joint within the past year decreases from 11% to 6% and correspondingly from 6% to 4% for the hip patients.

# Results—GLA:D® Back



## Results after GLA:D®



### Less pain

Immediately after the GLA:D® course, the average pain intensity in the back decreases by 31% (from 5.4 to 3.8 (0-10)). One year after starting the GLA:D® course, the average reduction in pain intensity is maintained.

### Use of pain medication decreases

Immediately after the GLA:D® course, the proportion who report having taken painkillers for their back pain drops from 57% to 41%. This level is maintained one year after initiating GLA:D®.

### Better physical function

Physical function measured via the number of times you can rise from sitting in 30 sec. (Chair Stand Test) improves on average by 25% from 12 to 15 times. Similarly, the level of functioning measured via the Oswestry Disability Index increases by 24% (from ODI score of 25% to 19% (0-100)). Endurance of abdominal and back muscles is increased by 46% and 44%, respectively.

### Less fear of physical activity

After the course, there are fewer thoughts or fears of pain during physical activity measured as an average decrease of 22% from 9.3 to 7.3 (0-24) on the Fear-Avoidance Scale.

### Fewer are on sick leave

The average number of days on sick leave during the last 3 months due to back pain decreases from 6.2 to 1.2 immediately after the course and further to an average of 0.8 days at one year.

### Many achieve individual goals

Before the course, the patient and clinician, in collaboration, set an individual goal for the patient. At the end of the course, 68% state that they have partially or fully achieved their goals, and 22% that they have fully achieved their goals.

# New research in GLA:D®



Photo: © GLA:D®

## Research

- Certification course
- Self-management
- Cost-effectiveness
- Hip replacement surgery
- Lumbar spinal stenosis
- Knee vs. hip osteoarthritis

### Participant in GLA:D® certification course

From where did clinicians attending certification course learn of GLA:D® Back? According to our research they primarily got to know of the program from their colleagues, through the Danish Physiotherapist Association or through GLA:D® for knee/hip osteoarthritis. [Link to the article.](#)

### Goal for self-management

The purpose of GLA:D® is to help the participants to better self-management of their musculoskeletal problems and to be able to do what is valuable to them. It is difficult to measure if the goal is achieved and therefore we developed a new instrument to measure this: "Patient enablement instrument for back pain". [Link to the article.](#)

### GLA:D® is cost-effective at 1 year

A health economic evaluation showed that GLA:D® for knee and hip osteoarthritis is cost-effective. The results support large scale implementation of a structured supervised evidence-based patient education and exercise therapy program targeting patients with knee or hip osteoarthritis. [Link to the article.](#)

### Hip replacement surgery after GLA:D®

30% of patients with hip osteoarthritis have gotten a hip replacement surgery 2 years after enrolment in GLA:D®. Only 60% of those being waitlisted for a hip replacement surgery before GLA:D® had the surgery within 2 years. [Link to the article.](#)

### Lumbar spinal stenosis

Self-reported symptoms of lumbar spinal stenosis are common among participants in GLA:D®. The symptoms are most common among those participating in GLA:D® Back, but also among participants in GLA:D® for knee and hip osteoarthritis. [Link to the article.](#)

### Similarities between knee and hip osteoarthritis

A comparison of GLA:D® participants with knee and hip osteoarthritis shows that these patients are more alike than different and that they benefit from GLA:D® to a similar extent. They should be similarly prioritized for treatment with patient education and supervised exercise therapy. [Link to the article.](#)

### Other research articles from GLA:D®

Please find the full list of research articles based on GLA:D® at the following websites: [GLA:D® knee/hip](#) and [GLA:D® Back](#).

# GLA:D<sup>®</sup> International Network

## GIN: GLA:D<sup>®</sup> International Network

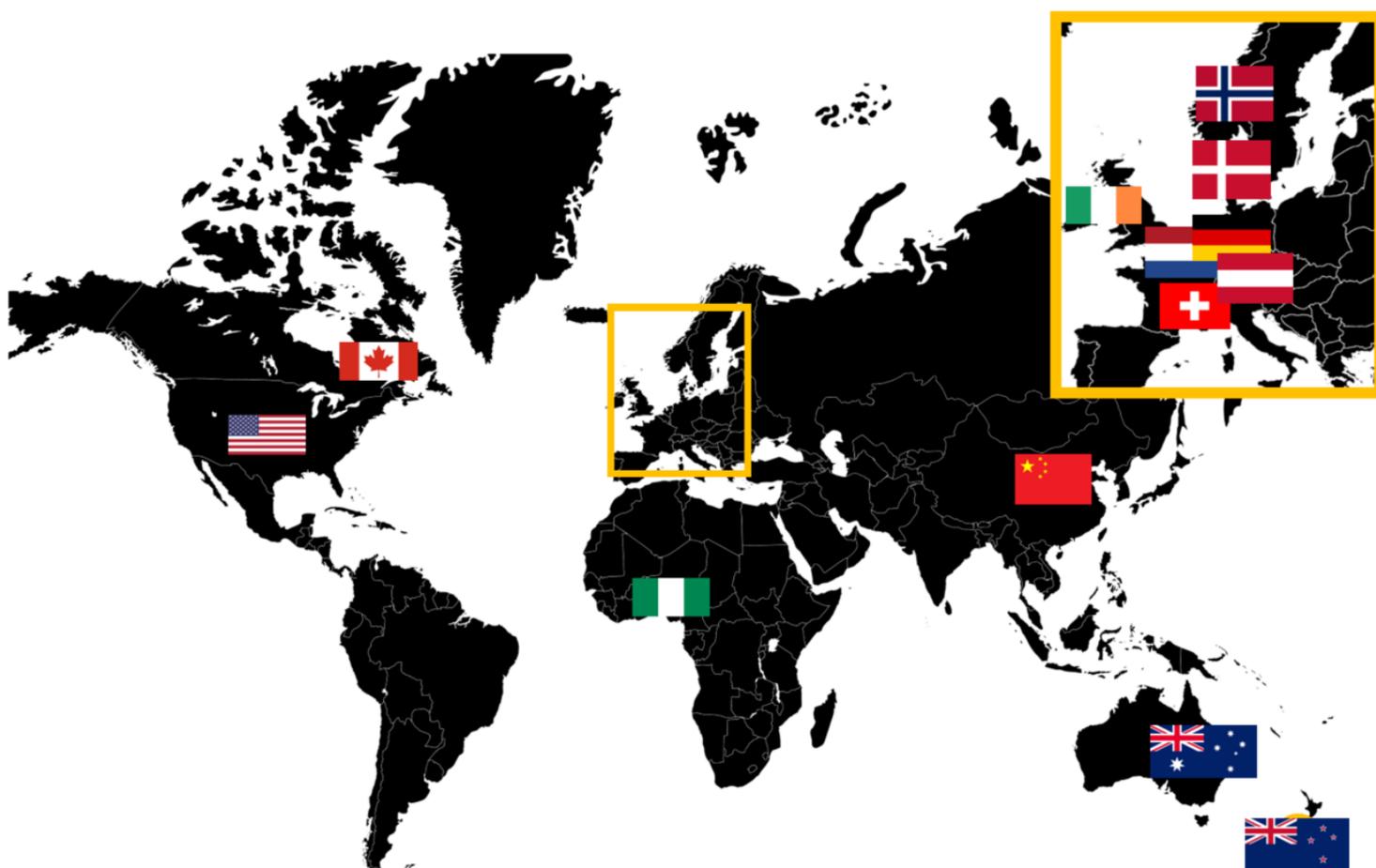
GLA:D<sup>®</sup> is offered to patients in Denmark, Canada, Australia, China, New Zealand, Switzerland, Austria, Norway, the Netherlands, USA, Germany and Ireland. In the Netherlands, Norway and USA GLA:D<sup>®</sup> is only offered as part of a pilot project. Previously GLA:D<sup>®</sup> has been tested in Nigeria.

National GLA:D<sup>®</sup> initiatives are usually linked with academic environments at a university in collaboration with local health providers. In Germany and in the Netherlands, partners also collaborate with local health insurance companies. This collaboration is based on the same principals as collaboration with the public health providers: patient education, exercise therapy and registration in a database.

The international collaboration in GLA:D<sup>®</sup> is formalized in the **GLA:D International Network (GIN)**. The purpose of GIN is to exchange experiences and en-

	<i>Knee-/hip osteoarthritis</i>	<i>Back pain</i>
	85,000 patients	5,500 patients
	6,000 clinicians	850 clinicians
	1,400 clinics	250 clinics

sure that GLA:D<sup>®</sup> is delivered consistently worldwide and to support the collaboration in program development and research. The group meets twice a year to discuss new initiatives, carry out workshops and present of new research projects. Once a year the meeting take place in conjunction with the annual OARSI conference, while the other meeting is hosted online.



Contact: [glad@sdu.dk](mailto:glad@sdu.dk) (knee/hip) or [gladryg@sdu.dk](mailto:gladryg@sdu.dk) (back)

GLA:D® website: [www.gladdanmark.dk](http://www.gladdanmark.dk)

International website under construction: [www.gladinternational.org](http://www.gladinternational.org)



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