



Annual Report 2023-2024



GLA:D® Denmark Annual Report 2023–2024

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The report can be downloaded from www.gladdanmark.dk

Photos: GLA:D®©

GLA:D® Annual Report 2023–2024

GLA:D® Denmark Team

GLA:D® consists of evidence-based and structured treatment programs for individuals with knee or hip osteoarthritis, as well as for those with persistent or recurrent back pain. The programs combine patient education and exercise, focusing on supporting individuals' ability to self-manage their condition. The content of GLA:D® is based on the latest research and is continuously updated in accordance with national and international clinical guidelines.

GLA:D® was developed at the University of Southern Denmark (SDU) through collaboration between patients, clinicians, and leading researchers. In 2023, GLA:D® celebrated its 10-year anniversary. Since the first participants enrolled in 2013, more than 146,000 individuals have completed a GLA:D® program worldwide. GLA:D® is now offered in more than 10 countries and has over 10,100 affiliated clinicians.

This report presents results from the Danish GLA:D® registries up to and including 2023 and 2024. As many of the results are consistent across the years, we present the overall trends collectively, while specific results for each year can be found in the two tables at the end of the report. You will also find information about new research initiatives, current international collaborations, and insights into how GLA:D® continues to evolve and expand — both nationally and internationally.

Thank you for your interest — and happy reading!



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GLA:D® Knee/hip

What is GLA:D®?



Photo: © GLA:D®

Content of GLA:D®

-  2 sessions, each 1 to 1½ hours long
-  Supervised Exercise for 6–8 Weeks | Twice a Week

Access to GLA:D®

-  Patients can contact a GLA:D® unit directly
-  Patients can be referred by their general practitioner or specialist

Who is GLA:D® for?

GLA:D® Knee/Hip and GLA:D® Back are targeted at individuals with osteoarthritis in the knee or hip, and those with long-lasting or recurrent back pain.

GLA:D® consists of:

- An initial consultation including examination, physical tests, assessment of training level, and registration in the database
- Two lessons covering theory about osteoarthritis in the knee/hip or back problems, risk factors, causes of pain, purpose of exercises, recommendations, and pain management
- Individually tailored exercise twice a week
- A final consultation with evaluation, re-testing, and a plan for the ongoing course, for example, maintenance of the exercises

Access to GLA:D®

Individuals with osteoarthritis in the knee/hip or back pain can access GLA:D® through:

- Direct contact to a GLA:D® clinic
- Referral from a general practitioner

- Referral from a specialist
- Referral via insurance company
- A municipality rehabilitation plan

Purpose of GLA:D®

GLA:D® supports the implementation of recommendations from clinical guidelines.

The overall purpose of GLA:D® for knee/hip is:

- To ensure that all individuals with osteoarthritis, regardless of residence or financial situation, are offered patient education and exercise according to clinical guidelines and current evidence
- To consider surgery only when non-operative treatment does not provide satisfactory results

The overall purpose of GLA:D® Back is:

- To ensure that all individuals with back pain, regardless of residence or financial situation, are offered patient education and exercises based on clinical guidelines and current evidence
- To enable participants to manage their pain through exercises and increased knowledge about back pain

GLA:D® Dissemination

Clinicians become GLA:D® certified through a 2-day course at SDU, and only certified clinicians are authorized to offer GLA:D®. This ensures that the content of patient education and exercises is as consistent as possible across all GLA:D® providers. From 2013 to 2024, SDU has held 29 courses focused on treating individuals with osteoarthritis of the knee or hip, training a total of 1,838 clinicians. Additionally, from 2017 to 2024, 19 courses have been held targeting individuals with back pain, training a total of 839 clinicians.

The majority of GLA:D® providers are physiotherapists. However, within GLA:D® Back, chiropractors make up 11% of course participants.

In 2023, 247 units had active GLA:D® programs for individuals with osteoarthritis in the knee or hip. This number decreased to 235 units in 2024. At the same time, 65 units had active GLA:D® Back programs for individuals with back pain in 2023, which decreased to 60 units in 2024.

In 2024, 20 municipalities offered GLA:D® for knee/hip — of these, 18 offered programs to patients and 2 offered programs to staff. Additionally, 7 municipalities offered GLA:D® Back.

Municipalities with GLA:D® in 2024

Osteoarthritis in Knee/Hip: Albertslund, Assens, Brønderslev, Fredensborg, Frederiksberg, Guldborgsund, Hedensted, Helsingør, Hillerød, Horsens, Høje-Taastrup, Jammerbugt, Kolding, Københavns, Næstved, Roskilde, Stevns, Tårnby, Vallensbæk and Vordingborg. In Assens and Kolding for staff.

Back Pain: Aalborg, Assens, Egedal, Frederikssund, Jammerbugt, Kolding and Tårnby.

Participation in GLA:D®

Among individuals with osteoarthritis in the knee/hip, 78% participated in the two sessions of education, and 81% attended at least 10 out of 12 exercise sessions.

Among individuals with back pain, approximately 70% participated in two sessions of education, and around 75% attended at least 10 out of 16 exercise sessions.

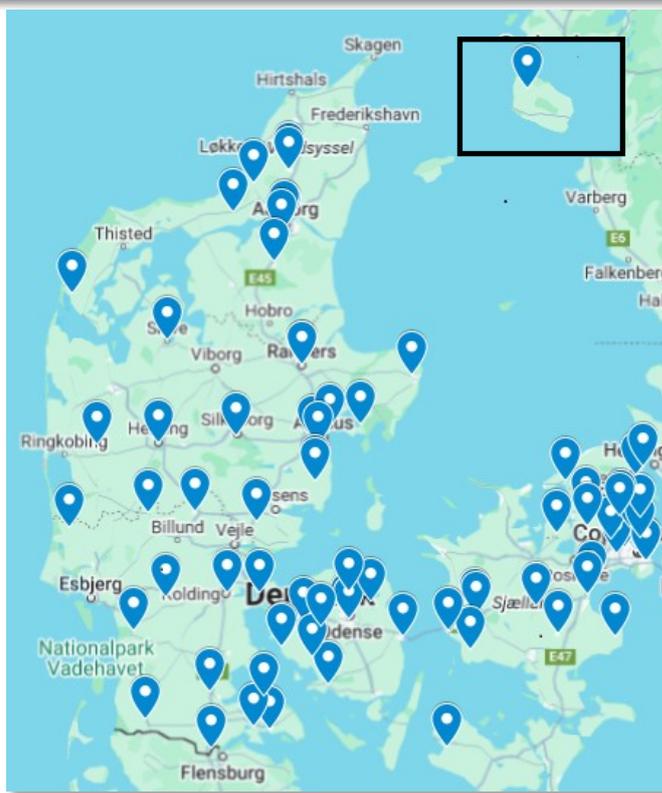
High Satisfaction with GLA:D®

Nearly 8 out of 10 participants in GLA:D® report being very or extremely satisfied with the program.



Units Offering GLA:D® for Knee/hip

*Yellow and blue symbols indicate multiple units

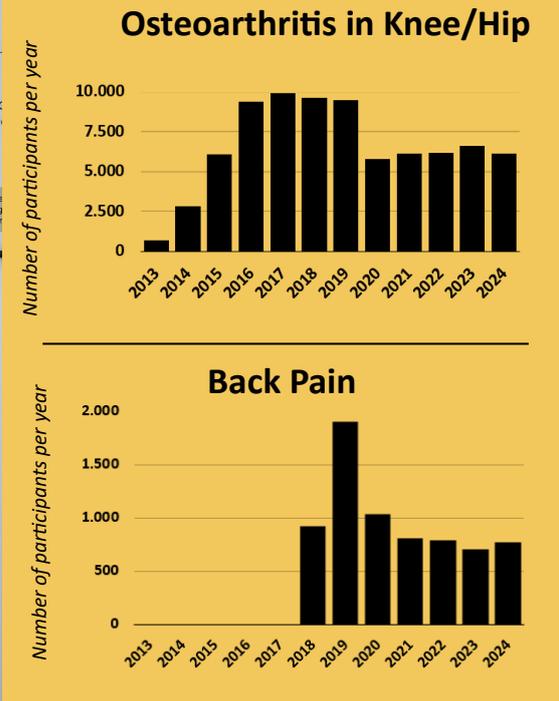


Units Offering GLA:D® Back

Who Participates in GLA:D®?



Photo: © GLA:D®



GLA:D® Knee/Hip

Over 79,000 people with knee or hip osteoarthritis have participated in a GLA:D® program. From 2016 to 2019, about 10,000 people participated annually, while the annual number of participants dropped to around 6,000 from 2020 to 2024 after COVID-19.

In both 2023 and 2024, the average age was 66 years, and 70% of the participants were women. The majority had knee problems (73% in 2023 and 72% in 2024), while the proportion with hip problems increased from 27% to 28%.

75% of participants with knee osteoarthritis were overweight, compared to 64% among those with hip osteoarthritis. The proportion with other conditions such as diabetes, osteoporosis, or metabolic-, heart-, or lung diseases decreased from 68% in 2023 to 66% in 2024. In both years, 30% reported having back pain.

In both years, 52% had experienced symptoms for more than a year at the start of the GLA:D® program. Of these, 27% had previously undergone knee surgery and 3% hip surgery. The average pain level before the program remained unchanged at 4.7 (0–10 pain scale), and about two out of three used pain medication.

GLA:D® Back

By the end of 2023, 6,146 participants had been registered in the GLA:D® Back program, increasing to 6,920 by the end of 2024. Approximately two out of three participants were women, and the average age was 58 years.

At program start, 59% had experienced back pain for more than one year, and the average pain level was 5.5 on a 0–10 pain scale. About six out of ten participants used pain medication before starting the program.

In 2023, 70% had received treatment for their back problem before enrolling in GLA:D® Back, while this proportion decreased to 65% in 2024.

GLA:D® Clinical Registries

The outcomes of participants in the GLA:D® program are monitored through clinical registries. Clinicians enter data at the start and end of the program. Additionally, participants complete questionnaires at baseline, after 3 and 12 months, and at 6 months for those with back pain.

These registries allow for continuous monitoring of the program's effectiveness and provide unique opportunities for research on treatments delivered in primary care settings.

Results — GLA:D® Knee/Hip



Photo: © GLA:D®

Results After the Program

	Knee	Hip
Pain 	- 28 %	- 21 %
Medication 	- 29 %	- 24 %
Walking speed 	+ 7 %	+ 7 %
Quality of Life 	+ 15 %	+ 10 %

Reduced Pain

In 2023 and 2024, the average pain intensity (0–10 pain scale) immediately after a GLA:D® program dropped from 4.7 to 3.4 among participants with knee osteoarthritis (–27%) and from 4.7 to 3.7 among those with hip osteoarthritis (–21%). This reduction was maintained one year after starting the program. The proportion of participants experiencing nighttime pain decreased from 36% to 23% in 2023 and 24% in 2024 for knee osteoarthritis. For hip osteoarthritis, it dropped from 50% to 38% in 2023 and from 51% to 39% in 2024. These improvements were sustained one year after the program.

Reduced Medication Use

In both years, the proportion of participants who had taken pain medication within the past two weeks dropped immediately after a GLA:D® program—from 62% to 44% (–29%) for knee osteoarthritis. For hip osteoarthritis, this decreased from 66% to 51% (–23%) in 2023 and from 68% to 52% (–24%) in 2024. After the program, fewer participants reported using pain medication—41% for knee osteoarthritis and 39% for hip osteoarthritis—compared to before starting. This reduction was maintained one year later.

Improved Physical Function

In 2023 and 2024, participants’ physical function improved immediately after a GLA:D® program. Walking speed increased on average from 1.5 m/sec before the program

to 1.6 m/sec (7%) after the program. Physical function, measured by the number of times a patient can stand up from a seated position in 30 seconds (Sit-to-Stand test), increased from 12 to 14 repetitions (17%). Around 10% completed a one-leg hop test. For knee patients, the average hop distance increased from 38 to 51 cm (34%). For hip patients, the distance increased from 42 to 52 cm (24%) in 2023 and from 42 to 51 cm (21%) in 2024.

Improved Quality of Life

In both 2023 and 2024, the average quality of life increased immediately after a GLA:D® program. For participants with knee osteoarthritis, quality of life related to knee/hip pain improved by 13% in 2023 (KOOS QOL from 46 to 52) and by 16% in 2024 (from 45 to 52). For participants with hip osteoarthritis, the improvement was 10% in both years (HOOS QOL from 48 to 53 in 2023 and from 47 to 52 in 2024). For both groups, there was a 22% improvement one year after starting the program compared to before the program.

Fewer Are on Sick Leave

In both 2023 and 2024, the proportion of patients with knee or hip osteoarthritis who had been on sick leave due to their joint problems during the past year decreased. For knee patients, the sick leave rate dropped from 11% to 6%, while for hip patients it decreased from 6% to 4%.

Results — GLA:D® Back



Photo: © GLA:D®

Results After the Program

Back Pain	
Pain	 - 29 %
Mediation	 - 29 %
Function	 + 25 %
Achieve Goals	 + 68 %

Reduced Pain

In 2023 and 2024, the average back pain intensity decreased by 29% (from 5.5 to 3.9 on a 0–10 pain scale) immediately after the GLA:D® program. One year after starting the program, the average pain reduction was maintained.

Reduced Medication Use

Immediately after the GLA:D® program, the proportion taking pain medication for their back pain decreased by 29% (from 58% to 41% in 2023 and from 59% to 42% in 2024). In both years, this level was maintained one year after starting the program.

Improved Physical Function

Physical function, measured by the number of times a patient can stand up from sitting within 30 seconds (Sit-to-Stand Test), improved from 12 to 15 repetitions in both 2023 and 2024. Similarly, functional level measured by the Oswestry Disability Index (ODI) improved by 24% (from an ODI score of 25 to 19). Endurance of abdominal and back muscles improved by 47% and 45%, respectively.

Less Fear of Physical Activity

After the program, participants experience fewer worries and less fear of pain related to physical activity, measured as an average decrease of 22% from 9.3 to 7.3 (0–24) on the Fear Avoidance scale, in both 2023 and 2024.

Fewer Are on Sick Leave

The average number of sick days in the past three months due to back pain decreased from 6.3 days before starting the program to 1.2 days immediately after the program in both 2023 and 2024. One year after the program, the number had further decreased to 0.8 days in 2023 and 0.9 days in 2024.

Many Achieve Personal Goals

At the end of the program in both 2023 and 2024, 68% of participants reported having partially or fully achieved their goals. In 2023, 21% fully achieved their goals, while 20% did so in 2024.

New Research in GLA:D®



Photo: © GLA:D®

Research

- Spinal Stenosis
- Gait Function
- Online Treatment
- Improved Physical Activity

Checklist for Delivering GLA:D® Back

Self-management interventions like GLA:D® Back can be challenging to implement in clinical practice. To support clinicians in implementing GLA:D® Back, we have developed a checklist focusing on adherence and professional competence. The checklist is designed to facilitate the use of a group-based self-management intervention like GLA:D®. You can read more and find the checklist in this research article: [Link to the research article.](#)

GLA:D® Back for People with Spinal Stenosis

People with back pain may experience symptoms resembling lumbar spinal stenosis. Therefore, we have investigated whether there is a difference in outcomes after a GLA:D® Back program between people with and without symptoms of lumbar spinal stenosis. Both groups experienced the same improvement in functional level as well as in lower back and leg pain. [Link to the research article.](#)

Improved Walking Function

Walking difficulties are the primary reason people with knee osteoarthritis seek treatment. After a GLA:D® knee/hip program, 51% of those with moderate to severe walking difficulties experienced improvement after 3 months, and 58% after 12 months, resulting in minimal or no walking difficulties. [Link to the research article.](#)

TeleGLA:D® for

People with Knee and Hip Osteoarthritis

Could online GLA:D® Knee/Hip (TeleGLA:D®) be the solution for people with knee and hip osteoarthritis who want flexible treatment? New research suggests that TeleGLA:D® may be just as effective as traditional in-person GLA:D® in reducing pain and improving function and quality of life. [Link til forskningsartiklen.](#)

Increased Physical Activity

Physical activity is often recommended for people with knee and hip osteoarthritis to improve pain and function. We examined changes in activity among individuals with low activity levels who participated in a GLA:D® knee/hip program. One third of the participants achieved and maintained a moderate activity level after 12 months. Changes in physical activity were not dependent on pain reduction, as both improvement and worsening of pain were associated with increased physical activity. [Link to the research article.](#)

Find other research articles on GLA:D®

Find the complete lists of research articles published from GLA:D® on the websites: [GLA:D® knee-/hip](#) and [GLA:D® Back.](#)

Overview table – GLA:D® Knee/Hip

2023			2024			
		<i>Knee</i>	<i>Hip</i>		<i>Knee</i>	<i>Hip</i>
Pain		- 28 %	- 21 %	Pain		- 21 %
Medication		- 29 %	- 23 %	Medication		- 24 %
Walking Speed		+ 7 %	+ 7 %	Walking Speed		+ 7 %
Quality of Life		+ 13 %	+ 10 %	Quality of Life		+ 10 %
Sick Leave		- 45 %	- 33 %	Sick Leave		- 33 %

The table shows the average percentage change experienced by participants from the start to the end of a GLA:D® program in the years up to and including 2023 and 2024. After 12 months, the results are generally maintained. For pain medication, the table shows the change in the proportion of participants using medication.

Overview table – GLA:D® Back

	2023	2024
Pain 	- 29 %	- 29 %
Medication 	- 29 %	- 29 %
Function 	+ 25 %	+ 25 %
Achieving Goals 	+ 68 %	+ 68 %
Sick Leave 	- 87 %	- 86 %
Fear 	- 22 %	- 22 %

The table shows the average percentage change experienced by participants from the start to the end of a GLA:D® program in the years up to and including 2023 and 2024. After 12 months, the results are generally maintained. For pain medication, the table shows the change in the proportion of participants using medication.

GLA:D® International

GLA:D® International Network (GIN)

GLA:D® targeting knee/hip osteoarthritis is offered to patients in Denmark (2013), Canada (2015), Australia (2016), China (2017), New Zealand (2019), Switzerland (2019), Austria (2020), Germany (2021), Ireland (2021), the Netherlands (2023), and Finland (2024). Additionally, GLA:D® knee/hip has been tested in Nigeria. GLA:D® Back is offered in Denmark (2018), Norway (2020), Australia (2020), Canada (2021), and Switzerland (2021).

National GLA:D® initiatives are generally anchored in academic centers at universities in collaboration with local healthcare stakeholders. For example, in Germany, cooperation includes insurance companies.

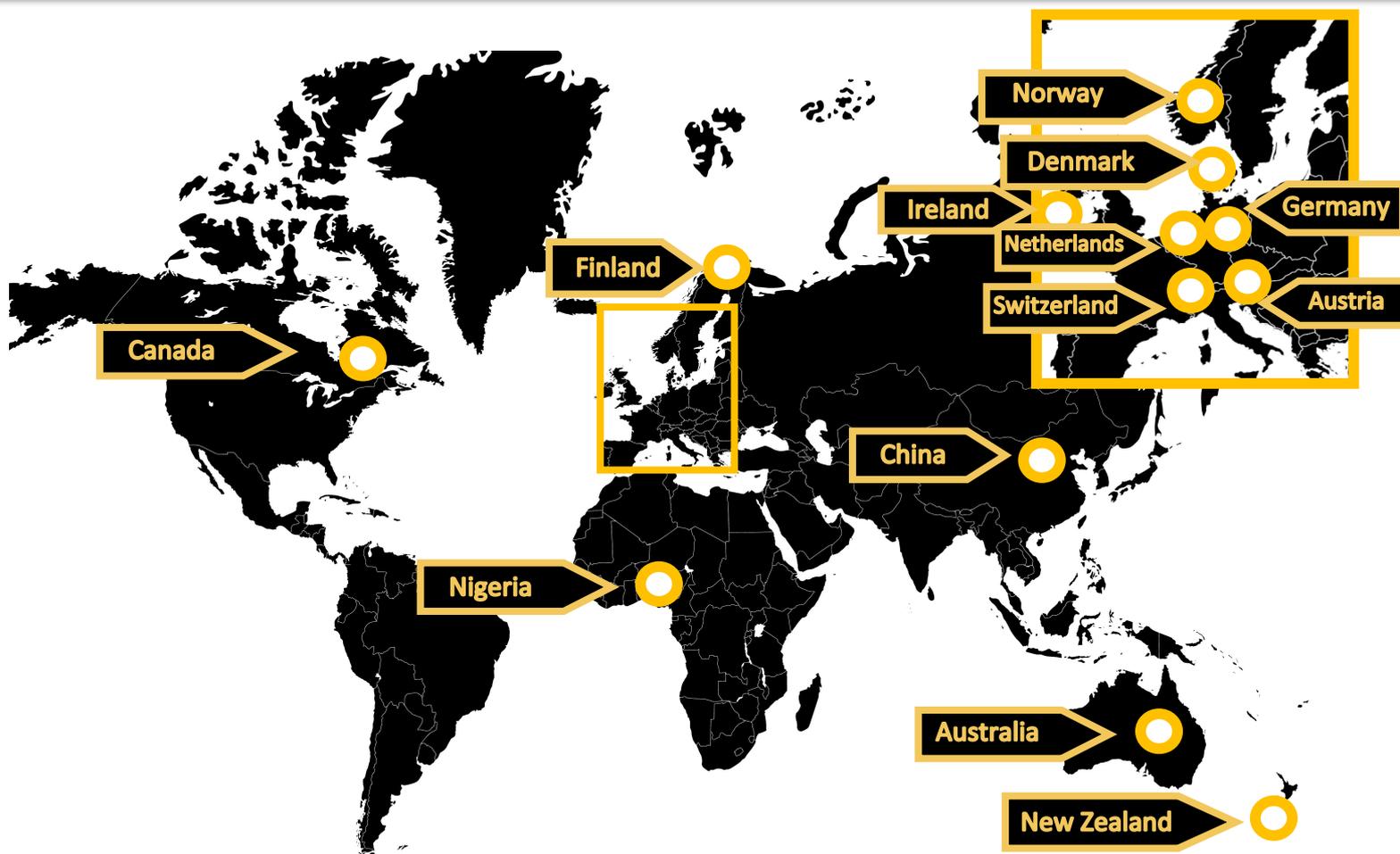
To promote international collaboration, we have established the GLA:D International Network (GIN). GIN is a collaborative organization with the purpose to ensure consistency in GLA:D® materials, messages,

GLA:D® internationalt - 2024

	<i>Knee-/Hip</i>	<i>Back</i>
	146,000 participants	9,400 participants
	10,100 clinicians	1,700 clinicians
	1,650 clinics	185 clinics

and exercise, as well as to promote collaboration in research and development. The network meets twice a year to present new research and discuss new initiatives and workshops. One meeting takes place annually in connection with the OARSI annual conference, and the other is held online.

Learn more about GIN here: www.gladinternational.org.







Contact: glaidsupport@sdu.dk (knee/hip) or gladryg@sdu.dk (back)

GLA:D® website: www.gladdanmark.dk

Common international website under development: www.gladinternational.org



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