GLA:D® GERMANY

Annual Report 2023
Good Life with osteoArthritis in Denmark (GLA:D®)

GLA:D® Germany Annual Report 2023

Figure 1: GLA:D® therapist training course

2023 was another eventful year for GLA:D® Germany. We are pleased to have gained additional health insurance companies as supporters of the program, making it possible which means that the program can now be made available toto provide even more patients with knee and hip osteoarthritis access to GLA:D®. This annual report provides an update on the status of GLA:D® Germany, the latest research findings, and highlights from the internatinal collaboration in the GLA:D® network. GLA:D® is an evidence-based treatment program for individuals with knee and hip osteoarthritis. It is based on the latest scientific research, follows international guidelines for osteoarthritis management, and is continuously evaluated and adapted. The core elements of GLA:D® include patient education and a supervised exercise program to promote patient self-management.

GLA:D® stands for "Good Life with osteoArthritis in Denmark" and was developed at the University of Southern Denmark (SDU) in collaboration with researchers, clinicians and patients. Today, GLA:D® is implemented in many countries around the world. All participating countries are part of the GLA:D® International Network (GIN), which facilitates the exchange of the latest research findings to ensure the continuous development of the GLA:D® program.

Enjoy reading the annual report!

Your GLA:D® Germany Team

What is GLA:D®?

Figure 2: GLA:D® training session

GLA:D® is designed for patients with knee or hip osteoarthritis. The concept is built on three key pillars: a standardized two-day training course for therapists, a structured education and exercise program for patients, and the GLA:D® registry.

Participation GLA:D® in includes:

1. Three individual sessions, including physical examination, functional testing, individual classification into exercise levels, and registration in the national GLA:D® database
2. Two patient education sessions providing comprehensive knowledge about osteoarthritis, risk factors, pain mechanisms, symptoms and recommendations for pain management and disease coping
3. A total of 6-8 weeks of supervised group exercise, with two sessions per week
4. A final individual session to repeat functional testing, provide a personalized evaluation, and offer guidance for continued independent training

Access to GLA:D®

Patients with knee and hip osteoarthritis can participate in GLA:D® through:
- referral by a general practitioner,
- referral by a medical specialist,
- own initiative, enrolment or referral by a health insurance provider.

Aim of GLA:D®

GLA:D® aims to implement international best practice guidelines in osteoarthritis care and …
- to ensure equal access to high-quality, evidence-based treatment for all patients with knee and hip osteoarthritis, regardless of their location or their financial situation
- to promote patient self-management and shared decision-making to provide the best possible support for individualized care

Distribution of GLA:D®

In fall 2021, 13 therapists were trained by the SDU team in a two-day course to become GLA:D® Germany instructors. Only individuals trained by the Danish developers are authorized to offer the two-day training course as additional training for therapists. This ensures that both patient education and exercises remain standardized across all GLA:D® providers. In 2023, 13 GLA:D® courses were held in Germany, training a total of 245 physiotherapists. Currently, GLA:D® is primarily offered to physiotherapists, with plans to expand the program to other professional groups in the long term.

In 2023, 70 GLA:D® centers were part of the network, providing GLA:D® for patients with knee and hip osteoarthritis.

Unlike in other countries, the contracts with health insurance companies in Germany require that physicians (general practitioners and specialists) who are responsible for referring patients to the program are part of the GLA:D® network.

Figure 3: GLA:D® Network Germany

By the end of 2023, GLA:D® Germany had recruited 130 doctors physicians to participate injoin the GLA:D® program and will continue to expand this network in the future. Patients can find the nearest GLA:D® network partner in their area usingvia the network search at **www.glad-deutschland.de.**
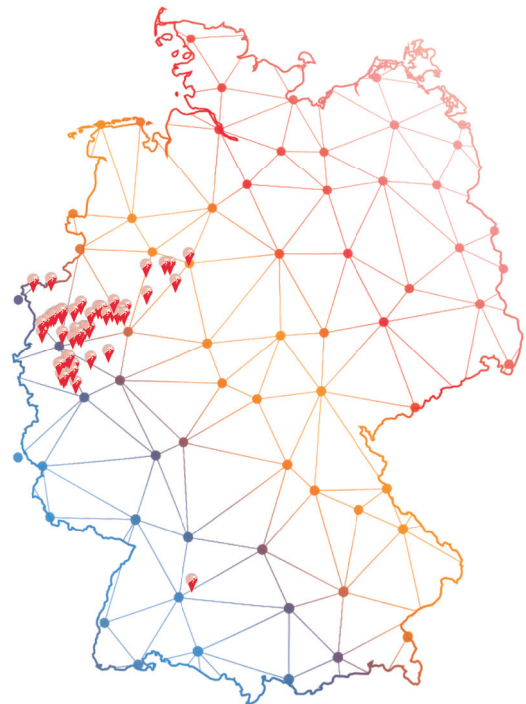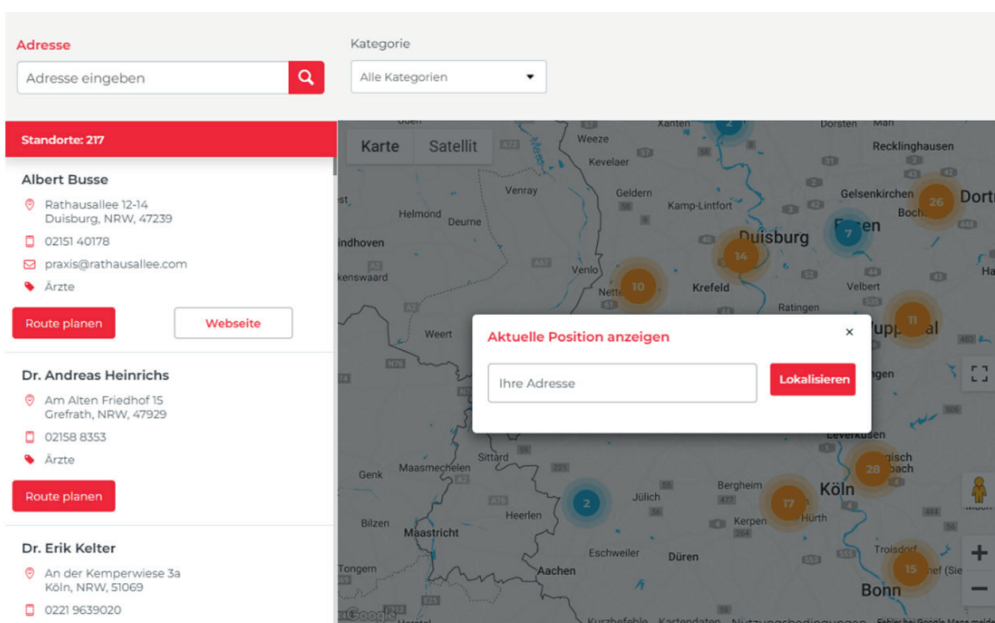

Figure 4: GLA:D® Network Germany

Participating health insurance companies

After BARMER, the first contractual partner to join us in promoting the new approach to osteoarthritis management in Germany, we have successfully added several other well-known partners to the GLA:D® network in 2023. All health insurance companies offer full cost coverage of GLA:D® for patients with knee and hip osteoarthritis. While GLA:D® is currently offered primarily in the pilot region of North Rhine-Westphalia, NOVITAS BKK provides nationwide access to its members.

Who participates in GLA:D®?

The first patients started the GLA:D® program in January 2023, and data from 599 patients were analyzed. Information on patient age, height and weight is provided in Table 1 (please note that not all variables are available for each patient due to missing data).

	N	male, N = 153	female, N = 394
Age	542	64 (56, 72)	65 (58, 72)
High	539	180 (175, 185)	167 (162, 170)
Waight	540	91 (82, 100)	76 (67, 89)
* 1 median (IQR)			

Figure 5: GLA:D® exercise program

Table 1: Description of the patients in GLA:D®

First results from GLA:D® Germany

This annual report is based on all data collected up to December 31, 2023. It includes data from 599 patients before participating in the program and from 251 patients at the 3-month follow-up. Data from the 12-month follow-up was not yet available for inclusion.

Reduced pain

Immediately after completing the GLA:D® program (3 months), participants' average pain intensity decreased from 54.05 (SD 23.18) to 42.39 (SD 23.82), representing a reduction of 11.66 points or 21.58%. Pain intensity was assessed using the numerical rating scale (NRS), where 0 indicates no pain and 100 represents the most severe pain imaginable.

Improved health status

After completing the GLA:D® program, participants' average health status increased from 59.86 (SD 21.61) to 64.04 (SD 21.13) points. This corresponds to an increase of 4.18 points or 6.98%. Health status was assessed using the EQ-5D visual analog scale (VAS), where participants rated their current health from 0 (worst imaginable) to 100 (best imaginable).

Improved physical function

Physical function was assessed using the 40-meter walk test and the 30-second chair-stand test. The 40-meter walk test measures the time taken to walk 40 meters, while the 30-second chair-stand test records how many times a person can sit down and stand up within 30 seconds.

The results indicate that after participating in the GLA:D® program, participants were able to complete the 40-meter walk more quickly. At baseline, it took an average of 29.99 seconds (SD 10.08) to cover the distance; after the program, this time decreased to 28.24 seconds (SD 11.38), a reduction of 1.75 seconds or 5.84%.

The results of the chair-stand test also showed improved physical function, with participants able to complete more sit-to-stand transfers in the same amount of time after participating in the GLA:D® program. At baseline, participants performed an average of 11.50 (SD 3.73) sit-to-stand transfers within 30 seconds. At the 3-month follow-up this increased to 13.57 transfers (SD 4.34), representing an increase of 18.00%.
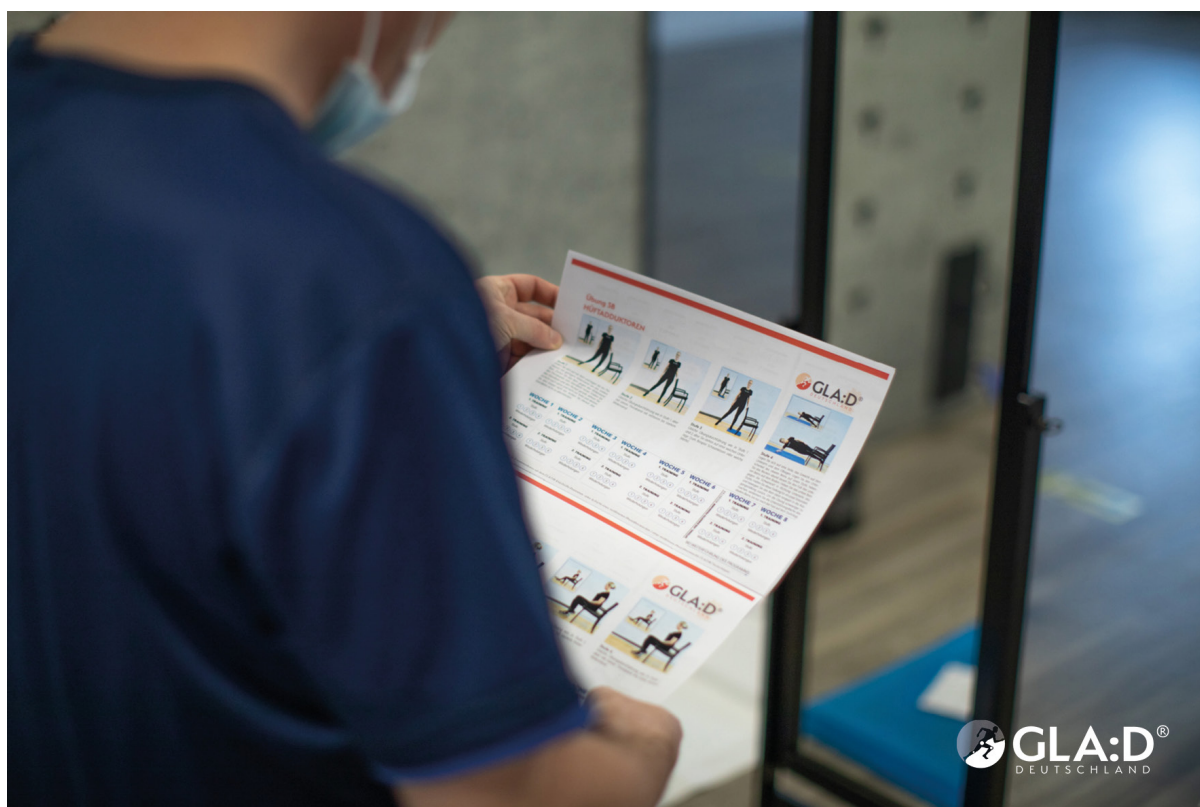

Figure 6: GLA:D® exercise program

HOOS and KOOS

The HOOS (Hip disability and Osteoarthritis Outcome Score) and KOOS (Knee injury and Osteoarthritis Outcome Score) are specific questionnaires to assess function and health-related quality of life in patients with hip and knee osteoarthritis, respectively. Both questionnaires are administered to all patients before and after participating in the GLA:D® program. Responses are converted into scores, which can be summarized into subscale scores (e.g. pain, quality of life and physical function). These scores are presented on a scale from 0 to 100, with 0 representing the worst and 100 the best possible health. Higher scores indicate better health and less impairment.

In both the KOOS and HOOS, patients showed improvements in pain, function and quality of life after participating in the GLA:D® program.

	Baseline*	Follow-Up*
KOOS-12 Subscale pain	43,75 (11,04)	54.87 (18.06)
KOOS-12 Subscale function	58,87 (21,06)	66.32 (19.05)
KOOS-12 Subscale QoL	37,92 (18,32)	46,01 (20,03)
HOOS-12 Subscale pain	51.28 (18,81)	56,25 (16,25)
HOOS-12 Subscale function	55.08 (21,26)	64,12 (18,42)
HOOS-12 Subsckale QoL	45,63 (20,72)	51,06 (17,64)
* Mean (SD)		

Table 2: HOOS and KOOS scores at baseline and 3-month follow-up

Conclusion

The initial results from implementing GLA:D® in Germany are consistent with those from Denmark and other countries, and show that GLA:D® contributes to pain reduction, improved quality of life and function in patients with knee and hip osteoarthritis.

Outcome data from the 12-month follow-up will show whether the improvements achieved through education and exercise therapy are sustained over a longer period of time.

Improved physical function

To evaluate the effectiveness of the GLA:D® training course from the therapists` perspective, participants complete an online questionnaire immediately before , 2 weeks after, and 1 year after the training course. The results indicate that the GLA:D® training course improves therapists' knowledge and confidence in managing patients with knee and hip osteoarthritis. In addition, the physiotherapists reported increased confidence in providing guideline-compliant care in clinical practice after the course.

	Prä (n =195)	Post (n =62)
Knowledge, training and skills		
<u>I know</u> how to deliver exercise and education to people with knee	147 (75%)	60 (97%)
<u>I know how to</u> deliver exercise and education to people with knee osteoarthritis following current guidelines	109 (56%)	61 (98%)
<u>I have been trained</u> in delivering exercise and education to people with knee osteoarthritis following current guidelines	135 (69%)	61 (98%)
Confidence		
<u>I am confident</u> I can deliver exercise and education to people with knee osteoarthritis following current guidelines	135 (69%)	61 (98%)
<u>I am confident</u> I can deliver exercise and education to people with knee osteoarthritis following guidelines, even when the patient is not motivated	86 (44%)	46 (74%)

Table 3: Results of the GLA:D® therapist survey

232 trained therapists (status of Nov. 2023); response rate: T0 n = 195 (84,1 %); T1 n = 62 (31,8 %)

Considering the prevalence of this condition in physiotherapy, the results may seem surprising at first. However, they demonstrate that guideline-based care - in particular the combination of exercise therapy and education as core components of standard treatment - can be effectively implemented after completion of the GLA:D® training course.

Figure 7: Theory in the GLA:D® therapist training course
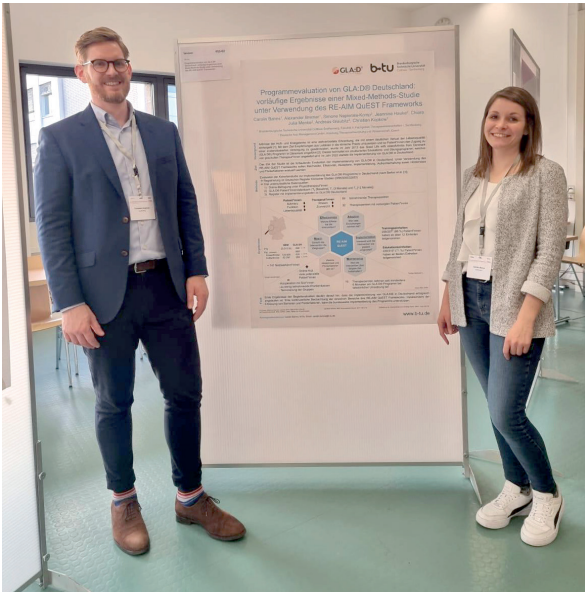
Public awareness

Figure 8: Prof. Dr. Christian Kopkow and Carolin Bahns

To raise awareness of the GLA:D® initiative in Germany, members of the GLA:D® Germany team attended various scientific congresses, including the Annual Meeting of the United South German Orthopaedic and Trauma Surgeons (April 2023), the German Congress of Orthopaedics and Trauma Surgery (October 2023) and the 7th Physiotherapy Research Symposium (November 2023).

The presentation focused on content and initial results oft he program. In addition, insights were provided into the accompanying research, which deals with the therapeutic perspective of osteoarthritis treatment, as well as barriers and facilitators to implementation.

The aim is to establish new partnerships within the physiotherapy and medical communities while increasing visibility among health insurance companies and patients.

The implementation of the GLA:D® program in Germany, in collaboration with one of the country's largest health insurance companies, has attracted significant media attention. As a result, numerous articles and interviews have been published in newspapers and specialist journals to increase the awareness of GLA:D® among patients and healthcare professionals.

On March 7, 2023, GLA:D® Germany was presented on WDR Servicezeit, where it was presented as an innovative conservative therapy for individuals with hip and knee osteoarthritis that can avoid or at least delay the need for artificial joint replacement. Andreas Glaubitz, project manager of GLA:D® Germany, highlighted the importance of structured and evidence-based osteoarthritis care in Germany.


Figure 9: Public relations work at the DKOU Medical Congress and GLA:D® on WDR Servicezeit

Future directions and developments

The GLA:D®-App

A new feature of GLA:D® Germany, which sets it apart from other countries, is the introduction of a specially developed (web) application. The app serves as a digital assistant throughout the GLA:D® program, simplifying many essential processes in a user-friendly way. Patients can use the app to access contact details of their GLA:D® center, receive reminders for upcoming appointments, and enter billing-relevant information directly within the app.

For service providers, the web interface provides access to key information such as current prescriptions, patient questionnaires, and therapy progress. In 2023, additional features were introduced, including a reminder system for both service providers and patients, to further support the therapy process and assist physiotherapy practices in implementing GL:AD®.
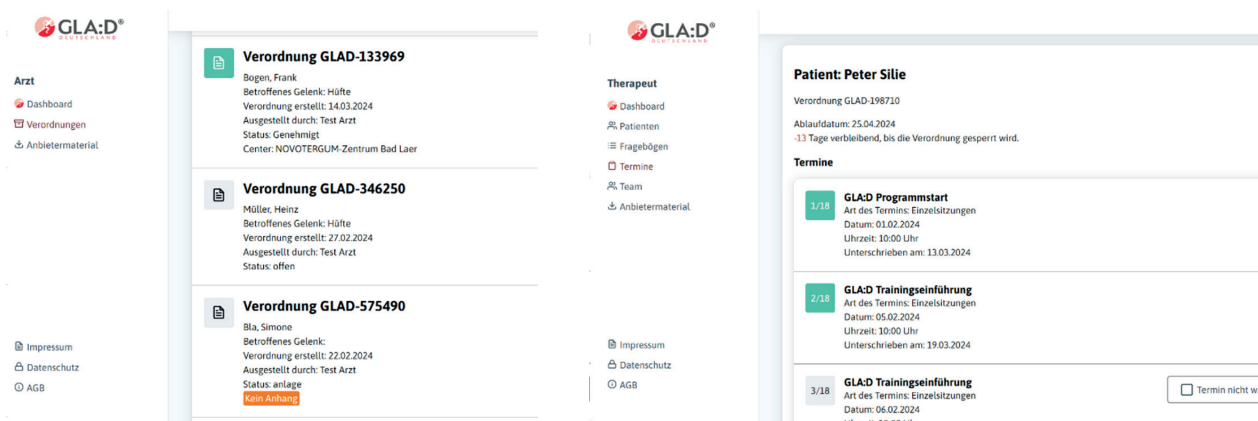
* These are excerpts from our development interface. They do not contain any real patient data.

Most importantly, the app allows patients to access the content of the training sessions and continue using the digital home exercise program after completing GLA:D®. This supports long-term lifestyle changes and promotes sustained increases in physical activity. In addition, digital questionnaires and test results are recorded directly in the app, ensuring that all collected data is immediately available for evaluation.

GLA:D® International Network

National GLA:D® initiatives are typically anchored in academic settings (e.g. universities) in collaboration with local healthcare providers. However, in Germany and the Netherlands, due to the unique characteristics of the healthcare systems, the partners also work directly with local health insurance companies.

International cooperation is coordinated by the GLA:D® International Network (GIN). The purpose of GIN is to facilitate the exchange of experiences, ensure consistent implementation of GLA:D® worldwide, and promote collaboration in program development and research. The group meets twice a year to discuss new initiatives and content, conduct workshops, and present new research projects. One meeting is held in conjunction with the annual OARSI conference, and the other is held online. All materials used in the training of therapists and the implementation of GLA:D® are regularly reviewed to ensure that they remain up to date and are adapted as necessary.

GLA:D® Germany had the honor privilege of hosting the 2022 GIN Meeting 2022. The event was held inas a hybrid format, allowing event to offer local partners in Berlin as well as peopleand international participants from other countries the opportunity for a jointto collaborate exchange via online participationboth in person and online.

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www.glad-deutschland.de