Welcome to GLA:D® Australia Hip and Knee Education

GLA:D® (Good Life with osteoArthritis from Denmark) is an initiative of Professors Ewa Roos and Soren Skou at the University of Southern Denmark.

It involves researchers, clinicians and people with hip or knee problems all coming together to understand and provide the best possible care according to international guidelines.

The GLA:D® Hip and Knee Program is now available in more than 10 countries around the world.

OVERVIEW:

The GLA:D® Program includes three parts:

1. **Two Education sessions** with your clinician, usually in a group which may be small or larger.
2. **Twelve Exercise sessions**, supervised by your clinician, most often in a small group. These are done twice-weekly for 6 weeks at a minimum.
3. **Data Collection** (online questionnaires for you to fill in) – in Australia this is done through La Trobe University

What is GLA:D® Education?

The GLA:D® Education sessions are two presentations that form part of the GLA:D® Program. GLA:D® Clinicians must offer these sessions to everyone with hip or knee osteoarthritis who is taking part in the GLA:D® Program.

Why should I attend the sessions?

People who understand their health conditions and the options available are more able to make informed choices about their treatment. GLA:D® aims to make sure that everyone knows a little about hip and knee osteoarthritis. The presentations are designed by GLA:D® and provided to your clinician for them to present to you so that everyone gets the same information.

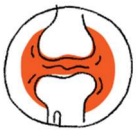
What happens in the sessions?

Clinicians have two presentations that they must provide as part of the GLA:D® Program, and they can be done in any order.

The sessions are separated into

Session 1:

- What is osteoarthritis?
- Risk factors and diagnosis
- Overview of treatment options



Session 2:

- Exercise therapy as treatment
- Help to self-manage your osteoarthritis

The sessions are presented live so that people can ask questions about the issues that are most relevant to them.

SESSION 1

WHAT IS OSTEOARTHRITIS?

⇨ *Osteoarthritis is very common*

Around the world:

- Osteoarthritis (OA) is **the most common lifelong disease** in people over 65 years.
- **More common** than high blood pressure and diabetes.
- It is recognised as a **lifelong** disease.
- **Symptoms may vary** and can be improved by treatment such as exercise.
- The number of people with osteoarthritis **increases with increasing age**. 30% of all people aged 45 or more report knee and/or hip pain.
- However, **age alone does not cause osteoarthritis.**

In Australia:

- 1 in 11 Australians have OA (self-reported data) in 2014-15; that's **2.1 million Australians.**
- 26% of OA patients report **fair or poor health** compared with 13% of those without.
- 3% of **all GP visits** in Australia are OA-related (1.5 million per year).
- In people aged over 65 with chronic pain, 70% nominated OA as the cause of their pain.

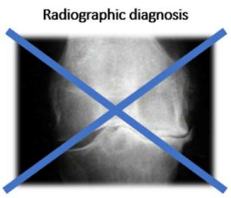
⇨ *Osteoarthritis affects the whole joint and is influenced by many factors*

- Osteoarthritis can **affect all joints** of the body where cartilage covers the ends of the bones.
- Most frequently **hand and fingers, the knee, and the hip joint**.
- It **affects the whole joint**, not just cartilage.
- Previous language used, such as 'wear and tear' is not accurate.
- Many things can influence your pain. As well as structures in your hip and knee joint, things like stress, thoughts and beliefs can influence how much pain you feel.

RISK FACTORS AND DIAGNOSIS

⇨ *Osteoarthritis should be diagnosed without imaging*

- Imaging is still often used to make the diagnosis of osteoarthritis.
- However, most clinical guidelines now tell us that **imaging is no longer required** for the diagnosis of knee or hip osteoarthritis.
- Instead, diagnosis can be made based on **symptoms**, existing **risk factors** and findings from a **clinical examination**.
- Symptoms of osteoarthritis can be present 10 to 15 years **before changes are seen on imaging**, which means a clinical diagnosis can lead to treatment starting earlier.



⇨ *Multiple risk factors can contribute to osteoarthritis*

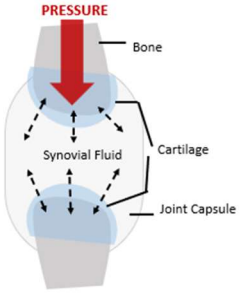
Factors that we cannot change (**non-modifiable**)	Factors that we can influence (**modifiable**)
• Age • Sex • Genetics	• Joint injury • Joint overload • Body fat and nutrition • Physical inactivity • Weak muscles

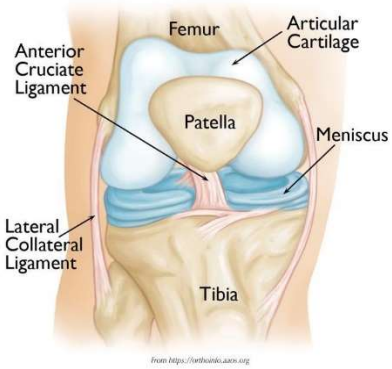
Modifiable risk factors are where we can focus our treatment.

⇨ *The healthy joint*

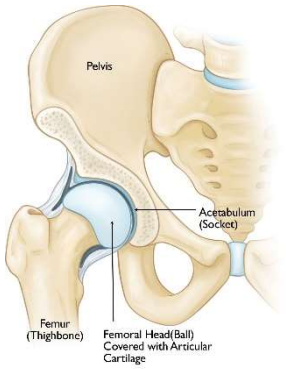
- A joint is the connection between two bones.
- The ends of the bones are covered with **articular cartilage**, which forms sliding surfaces.
- Cartilage **doesn't have a good blood supply**, so receives nutrition from fluid in the joint (synovial fluid)
- This means that for the cartilage to get adequate nutrition, it **needs dynamic load**.
- The **articular capsule** around the joint produces synovial fluid which helps the joint to get a nutrient supply.
- Around and inside the joint are **ligaments** for stability.
- The **muscles** help to both stabilize and move the joints.
- The **knee joint has two menisci** to help distribute the body weight over the joint surfaces.
- The **hip joint has a labrum** to increase stability of the hip joint, absorbing shock and distributing pressure during hip motion.

The way cartilage is nourished can be compared to a sponge: When the joint is loaded, fluid is pressed out from the cartilage tissue; when the pressure eases and the joint is unloaded, 'new' fluid is sucked back into the cartilage.





Knee Joint



Hip Joint

⇨ *Osteoarthritis affects the whole joint*

Changes that may be present:

- Cartilage loss
- Osteophytes
- Subchondral bone changes
- Swollen and inflamed articular capsule
- Bakers Cysts
- Muscles, tendons and ligaments are often painful

The pain associated with osteoarthritis **does not come from the cartilage as the cartilage has no nerves** => instead, it is the surrounding structures such as bone, ligaments (connects bone to bone), joint capsule, and tendons (connects muscle to bone) that hurts.

⇨ *Meniscal and labral tears are part of osteoarthritis*

Very often a meniscal or labral tear is an **early sign of osteoarthritis,** especially in middle-age and older, and if there has been no or little trauma.

- Exercise therapy works well for people with a meniscus tear or labral tear
- Arthroscopy for meniscal injury from osteoarthritis is not recommended

⇨ *X-rays, and other imaging, is not a good way to diagnose osteoarthritis*

- About **half of people** who experience osteoarthritis pain have **no visible changes** on their imaging
- Only about **half of people with imaging changes have symptoms**

⇨ *Typical Symptoms*

Typically, symptoms develop slowly and may fluctuate:

- Pain during weight bearing
- Noises
- Stiffness
- Feeling of instability
- Pain at rest and at night
- Swollen joint

Exercising can reduce all these symptoms if it is adjusted to your needs.

⇨ *Typical Pain Locations*

Knee osteoarthritis:	**Hip osteoarthritis:**
• Above the knee • Inside of the knee • Outside of the knee • Behind the kneecap • Down the lower leg	• Outside of the hip • In the groin • Inner thigh • Outer thigh • Buttock • Along the thigh towards the knee

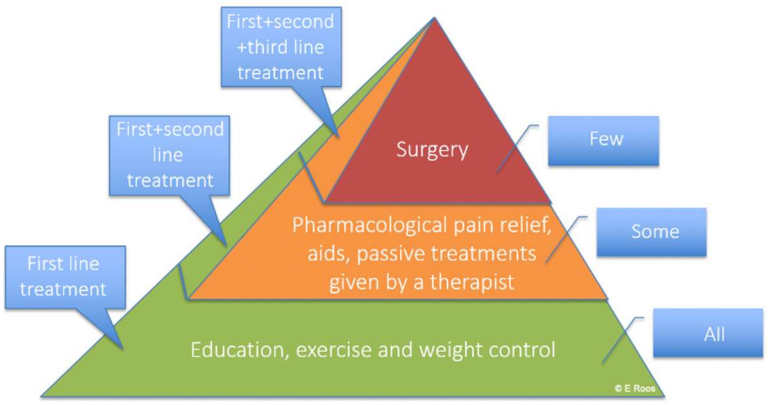
⇨ *Common activities affected by hip and knee osteoarthritis*

- Leisure activities and sports
- Physically demanding job
- Playing with children or grandchildren
- Change of direction
- Putting on socks and shoes
- Standing or walking for a long time
- Going up or down stairs
- Sleep

Are these activities something you recognize as being difficult? Alternatively, are there other things that are not on the list that you have a hard time doing?

TREATMENT OPTIONS FOR OSTEOARTHRITIS

There is no cure for osteoarthritis. Treatment aims at reducing symptoms and improving joint function using the options as shown in the pyramid.



Osteoarthritis treatment pyramid

⇨ *First line treatments*

All people seeking care for osteoarthritis should be offered exercise therapy, patient education and weight reduction (if overweight).

⇨ *Second line treatments*

- Second line treatments have varying levels of evidence to support their use.
- Often, they are associated with benefit in reducing pain in the short term.
- Second line treatments **should not replace first line treatments** (but can be added).

Non-pharmacological second-line treatments:

- Supporting shoes, shoe inserts, /orthotics, taping and braces
- Dry needling/acupuncture
- Walking aids
- Hot and cold pack, and electrical stimulators like TENS

Pharmacological second-line treatments: Common examples
****Always consult your GP or pharmacist about any of these****

- Paracetamol – weak effect, relatively safe
- NSAIDs – slightly stronger effect, some safety issues
- Opioids – not recommended, poor effect, not safe
- Cortisone injections – specific uses
- Other injections – none recommended
- Glucosamine
- Other dietary supplements

Placebo effect
Research shows that the placebo effect is **often as big as the medical effect**. This means that you will experience the same effect whether you take pain medication or a calcium pill or saline injection. If you believe or expect the medication will give you pain relief then it will.

⇨ *Third line treatment: Surgery for osteoarthritis*

Arthroscopic surgery

- Commonly known as a 'joint clean-up'
- Very common; benefit is about the same as placebo ('fake surgery') – but has more risks
- OA treatment guidelines around the world **recommend against** arthroscopic surgery for OA.

Total Joint Replacement surgery

Joint replacement is a good operation for the right person

- Joint surfaces are removed and replaced
- Around 5-10% (hips) 15-20% (knees) still have at least the same pain and other problems after the surgery.

Data has shown that people who complete a program like GLA:D® **may delay and perhaps prevent surgery**.

⇨ *Completing an exercise program like GLA:D® means you are better prepared for the surgery*

As with all surgeries, there are risks and potential complications with joint replacement surgery.

Completing an exercise program like GLA:D® first may help you to:

- Improve your health and be in better shape to undertake the surgery
- Experience faster recovery due to having better muscle strength
- Be well-prepared for your rehabilitation which often has the same exercise approach

Participating in an exercise program like GLA:D® can be **beneficial even if you are already signed up for surgery.**

SESSION TWO

EXERCISE THERAPY AND PHYSICAL ACTIVITY

Physical activity	Exercise therapy
• Good for everyone • Any body movement making your heart beat more rapidly • Can occur during leisure activities or occupation activities • Focus is not specifically on how your body is moving	• Has a specific purpose • Often guided by a health professional • Can improve your ability to be physically active • Designed to work on specific things, usually targeted to the individual

Physical Activity

⇨ *Physical activity is important for your health*

World Health Organization (WHO) recommendations are for everyone:

- Minimum of 150 minutes of moderate or 75 minutes of intensive physical activity – or any combination of these in a week
- Muscle strengthening at least twice a week
- Minimise sedentary activity

⇨ *There are many positive effects from being physically active*

⇨

Physical activity has positive effects on:	**Physical activity can prevent and treat**
• Blood pressure • Blood lipids or 'bad' cholesterol • Blood sugar • Physical fitness • Muscles • Bone • Cartilage • Body weight • Pain relief • Mood	• Cardiovascular disease • Diabetes • Dementia • Cancer • Lung disease • Chronic kidney disease • Peripheral vascular disease …and more

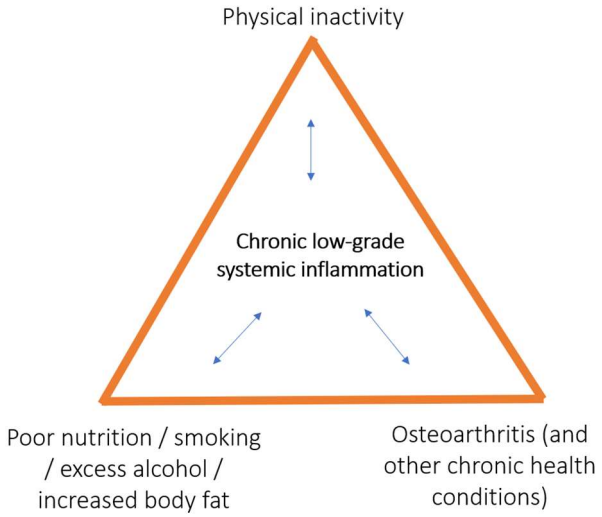
What are some reasons that <u>you</u> would like to be more active?

⇨ *Physical activity can reduce levels of chronic systemic inflammation*

Chronic systemic low-grade inflammation:

- Common in people with chronic conditions like osteoarthritis
- Often long-term and present throughout the body
- Also associated with higher levels of body fat (adiposity)
- Can contribute to the development or progression of many conditions

Health-enhancing habits, such as increasing physical activity levels, to improve your lifestyle can help reduce chronic systemic inflammation.



⇨ *Physical activity can reduce local inflammation*

Local inflammation:

- Common in osteoarthritis joints
- Can lead to joint pain, joint stiffness, joint swelling, and physical limitations.

Anti-inflammatory effects of exercise may explain the positive effects of physical activity and exercise therapy in many diseases.

⇨ *Setting goals for physical activity*

Some activities are harder on your joints than others. That is why targeted exercising and realistic goal setting are important. Have you always been physically active, but now been forced to quit because of pain? Do you have any goals for activities you'd like to do, or to do more?

- **6-8 weeks** of exercises (like GLA:D®!) may help increase your ability to do your preferred physical activity
- Set **realistic goals** – modify your training and introduce some variation
- Find ways to introduce physical activity in your **daily life**, for example:
    - Walking your dog a bit longer
    - Take your bike instead of your car
    - Do more gardening
    - Stand up and sit down while watching TV

What are some activities that you enjoy which could also help you to be more physically active?

⇨ Exercise therapy for Osteoarthritis

How does supervision help you with your exercise therapy?

_____

_____

_____

_____

_____

Exercise helps to improve:

- Joint range of motion
- Joint stability
- Functional movements
- Pain levels

Effect of exercise is NOT dependent on:

- Imaging findings
- Pain intensity
- Previous physical activity level

One study found that even people with 'severe' OA on the waiting list for joint replacement can have significant improvements – and ¾ of these people also decided against joint replacement after 12 months.

⇨ *GLA:D® Exercises*

Neuromuscular exercises focus on control and quality of movement. Focus on your alignment, which can be different for each person.

Four components

Trunk Strength *Exercises that focus on core/spine stability as this affects your ability to stabilize and control your hip and knee joints*	***Alignment of joints*** *Exercises that focus on an appropriate position of the joints in relation to each other, i.e. that the hip, knee and ankle joints are best aligned for the individual*
Leg strength *Exercises that focus on strengthening the hip and knee muscles*	***Functional exercises*** *Exercises that prepare the body for daily activities*

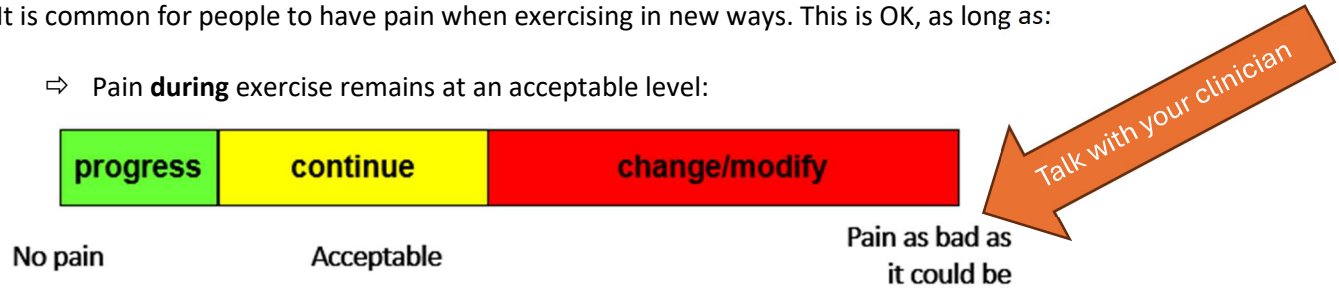
You will get an **individualised** exercise program from your GLA:D® clinician to suit you and your expectations. The GLA:D® clinician will later progress the difficulty of the exercises safely, so that you become stronger and can cope with your daily life.

Just like medications, exercise needs to be **dosed correctly**:
minimum of 6 weeks, minimum of 2 sessions per week.

⇨ *Pain during exercise*

It is common for people to have pain when exercising in new ways. This is OK, as long as:

⇨ Pain **during** exercise remains at an acceptable level:



⇨ Pain levels **after** exercise return to their usual level within 24 hours

- Exercises can be modified if unacceptable pain occurs
- For most people, pain during exercise will decrease over time, even if you have severe osteoarthritis
- Talk to your GLA:D® clinician if you get worried or unsure about how to handle the pain

⇨ *The pain system*

Pain depends on many factors, but involves two main processes:

- Warning signals from the body (e.g., following a burn)
- Interpretation in the spinal cord and brain

} = 'pain system'

The pain system acts like an alarm, and just like a smoke alarm, it can malfunction.
The pain system works well to prevent acute injury such as a burn by telling us to pull our hand away from the heat.

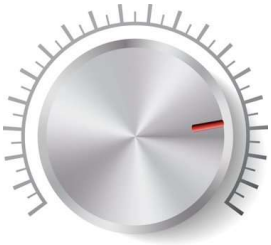
But sometimes it can become oversensitive (like a smoke alarm with steam or candles) – especially when the pain has lasted for a long time.

An oversensitive pain system might continue to send pain messages even when there is no damage occurring – or it might send messages about a different part of the body.

Hormones released in the brain can dial up or dial down the pain system signal.

'Dial up' hormones are cortisol and adrenaline.
They are released when we feel:

- Stressed
- Angry
- Sad
- Anxious

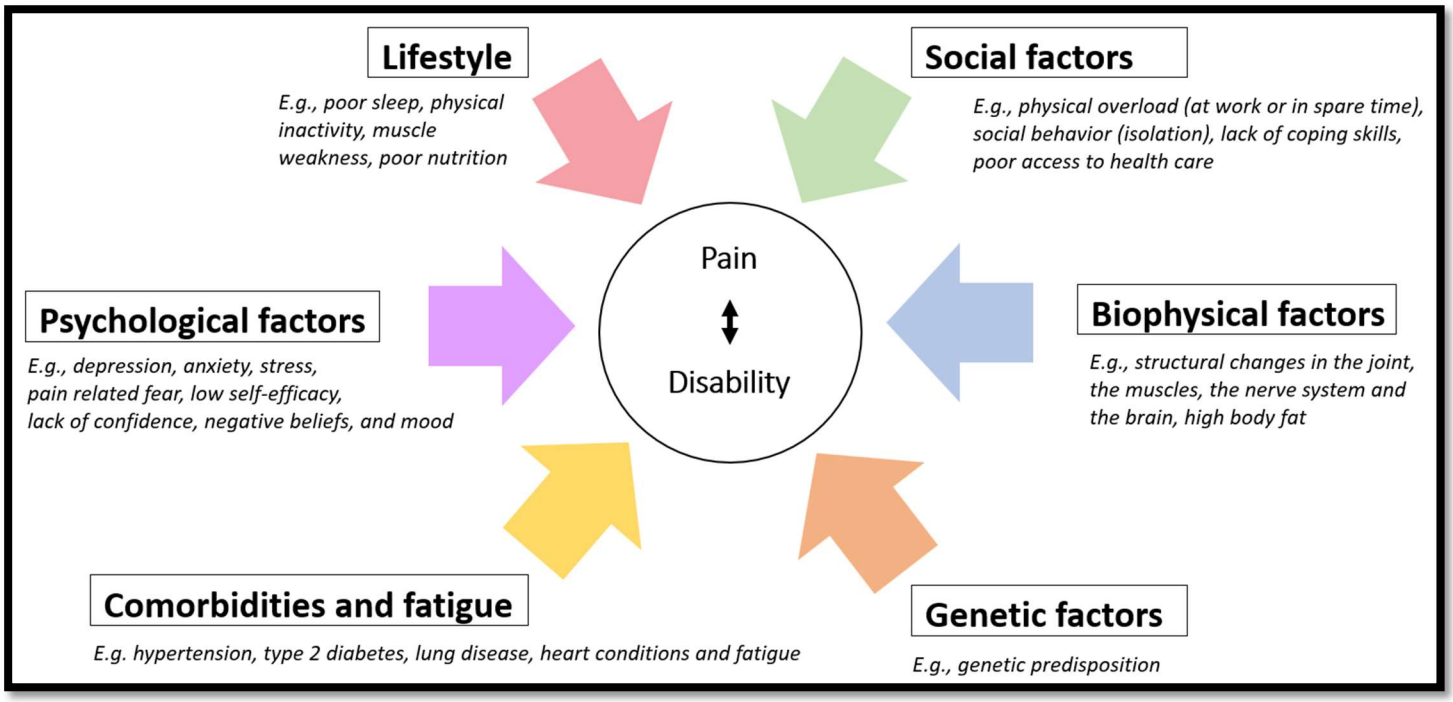


'Dial down' hormones are oxytocin, dopamine, endorphins, serotonin.
They are released when we feel:

- Happy
- Loved
- Fulfilled
- Relaxed

Doing activities that help us feel these ways will also help to reduce our pain.

⇨ *Osteoarthritis is affected by many things*



SELF MANAGEMENT

⇨ *What helps?*

- Move often
- Avoid forming a habit of limping – use a walking aid, or take breaks
- Don't leave your joints in one position – move them through their full range frequently
- Start new activities slowly and intentionally – plan them whenever possible
- Do not 'fight your pain at any price' – learn to manage it
- Set realistic goals for your daily activities

If things don't go well: **stop, reassess, change your approach, and try again**!

⇨ *What to expect from GLA:D®*

Results from GLA:D® show:

- **Less pain / less need for pain medication**
- **Improved walking speed, greater ability to manage daily activities**
- **Higher quality of life**

How do we know?
From our data collection – from you!

Thank you
for completing your questionnaires at baseline, 3 months and 12 months

⇨ *What happens after GLA:D®?*

To maintain the results you have achieved with GLA:D®, you need a plan!

- Attend your 3-month follow up consultation
- Stay physically active after GLA:D® to maintain the results you have achieved.
- Think about ways to incorporate exercise (and physical activity) into your life.

References and Bibliography for GLA:D® Hip and Knee Participants

Sources

- ⇨ Data about osteoarthritis in Australia is taken from the **Australian Institute of Health and Welfare (AIHW)** website: https://www.aihw.gov.au/reports/chronic-musculoskeletal-conditions/osteoarthritis

- ⇨ **Royal Australian College of General Practitioners (RACGP**) Guideline for the management of knee and hip osteoarthritis: https://www.racgp.org.au/clinical-resources/clinical-guidelines/key-racgp-guidelines/view-all-racgp-guidelines/knee-and-hip-osteoarthritis

- ⇨ **Translating Research Evidence and Knowledge (TREK)** Education: https://trekeducation.org/
  - My Knee (TREK education https://myknee.trekeducation.org/)
  - My Knee cap (TREK education https://mykneecap.trekeducation.org/)

- ⇨ **Australian Commission on Safety and Quality in Health Care**: Osetoarthritis of the Knee Clinical Care Standard (2024) https://www.safetyandquality.gov.au/publications-and-resources/resource-library/assessment-tools-osteoarthritis-knee-clinical-care-standard-2024

Key References

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Patient education improves pain and function in people with knee osteoarthritis with better effects when combined with exercise therapy: a systematic review
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4. Skou ST, Pedersen BK, Abbott JH, Patterson B, Barton C.
Physical Activity and Exercise Therapy Benefit More Than Just Symptoms and Impairments in People With Hip and Knee Osteoarthritis.
Journal of Orthopaedic & Sports Physical Therapy. 2018
https://www.jospt.org/doi/10.2519/jospt.2018.7877

Other Resources

On the GLA:D® website, please also see:

- Useful Links https://gladaustralia.com.au/useful-links/
- Research and evidence behind GLA:D® https://gladaustralia.com.au/key-evidence-surrounding-glad/
- Infographics (summaries of evidence) https://gladaustralia.com.au/joint-health-infographics/