Degenerative meniscus tear

Your physiotherapist has diagnosed you with a degenerative meniscal tear. This booklet gives information on the different types of meniscus problems, the evidence-based management options, and how physiotherapy can help. If you have any questions, please speak to your physiotherapist.
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The menisci are C-shaped tissues inside the knee joint, located between the thigh (femoral) and shin (tibia) cartilage surfaces. Both are found in the joint. There is one on the inside of the knee (medial) and one on the outside (lateral).

The outer parts have adequate blood supply, but the middle and inner parts have poor blood supply. Because blood supply can affect healing, the location of a tear will affect treatment options.
What are the functions of the meniscus?
The menisci are tissues which respond to force and load. They have several important functions:

- increasing knee joint stability
- joint lubrication
- helping balance
- shock absorption
- load transmission (spreading weight/stress more evenly across the knee joint).

What are the types of meniscal injuries?
The menisci are among the most frequently injured parts of the knee joint. There are different types of meniscal injuries:

- acute meniscal tears (due to a specific injury)
- degenerative meniscal tears (not due to a specific injury).

It is important to know the difference between these two types of injuries, because the way we treat them is different.

Acute meniscal tears
Some key features are:

- they happen in younger people, under 40 years old
- they are usually associated with a twisting injury
- they cause localised knee pain
- ‘locking’ of the knee, where the knee gets stuck in a position and you are physically unable to release it from that position with assistance.
Degenerative meniscal tears
Some key features are:
- they happen in middle-aged or older people
- there is no specific injury or incident
- they gradually come on and get worse
- knee pain that may be difficult to pinpoint

What are the causes of degenerative meniscal tears?
There is no one specific cause of degenerative meniscal tears. They are probably an early sign of osteoarthritis (the normal aging process of joints), rather than a completely separate diagnosis. A lot of middle-aged and older people have degenerative meniscal tears without knee pain.

While there is no one cause, there are a range of contributory factors which may increase the risk of developing degenerative meniscal tears.

Contributory factors

Weight
Being overweight can significantly increase the chance of developing knee pain because the joint must carry the extra weight. For every pound of weight loss, your knee feels four pounds less stress.

Cardiovascular fitness
Poor cardiovascular fitness is closely associated with degenerative meniscal tears. Good cardiovascular fitness is important for general health and helps you to carry out daily tasks and leisure activities.
Load tolerance
The knee adapts to an individual’s usual level of activity, developing a baseline level of load (weight) at which the knee is comfortable (a load tolerance level). Excessive loading or rapid increases in load rarely cause serious damage, but can make your knee more sensitive.

![Graph showing varied and rapid increased in loading]

Strength
Weakness in the muscles at the front of the thigh (quadriceps) can have a big impact on knee function.

Alongside this, weak hip and bottom muscles (glutes) can reduce the control of single leg movements – used for climbing stairs, walking and running. This can lead to your knee being more sensitive.

Movement biomechanics
Having strong muscles is important, but you also need muscles that work efficiently to control your movement – above, at and below the knee. A lack of movement control can also make your knee more sensitive.

Flexibility
Tight or restricted movement can reduce your range of movement and affect how load is transferred through your knee. Common areas of tightness are the thigh muscles and calf muscles.
How are degenerative meniscal tears managed?
Physiotherapy is the most effective method of managing painful degenerative meniscal tears.

Losing weight, if overweight, is an important part of managing the condition.

Pain killers can be used to provide temporary relief, and are particularly useful to allow you to exercise. Corticosteroid injections may provide temporary pain reduction, but will need to be discussed with your clinician to see if they are suitable.

Surgery will not help degenerative meniscal tears.

How will physiotherapy help?
Physiotherapy is only one part of your treatment. It will help identify the dominant contributory factors and give specific, targeted rehabilitation programme.

This will include education and exercises to improve your knee function. These may include cardiovascular fitness, strengthening exercises for weak muscles, stretches for tight structures and/or exercises to improve your movement control. These will improve your load tolerance and your knee’s health.

To get your knee back to full strength, you will need to follow the regular exercise programme and attend all of your physiotherapy appointments.
How long will it take to get better?
There are no quick fixes for degenerative meniscal tears. With rehabilitation, we would expect to see improvements over 3-6 months. Improvements can continue beyond this.

Do I need an MRI scan?
MRI scans give a very detailed picture of the knee and may form part of the assessment process, but they are not as important as detailed questions and a physical examination.

Degenerative meniscus tears commonly exist in people without knee pain, so it is important that treatment deals with your contributory factors, not just the picture generated from the scan.

An MRI scan will only be needed if surgery is being considered. If investigations are necessary, an X-ray may be more useful than an MRI.

When is surgery useful?
We don’t remove menisci to treat knee pain, as it can lead to earlier onset of osteoarthritis.

Surgery is only done when there are clinical symptoms of ‘catching’, ‘locking’ and/or localised knee pain. These symptoms are more commonly associated with an acute meniscal tear. In these cases, we try to remove as little meniscal tissue as possible.
How do I manage ongoing pain?
Sometimes increases in pain can happen without warning. This is common with degenerative meniscal tears and is often associated with changes in load or activity. During a flare up, exercises and daily activities should be reduced in order to decrease the load on the knee. Over time, normal activities and exercise should be gradually built back up.

While returning to normal function, the use of ice or heat with painkillers from your local pharmacy may also help. If using ice, you can apply ice packs wrapped in cloth (not applied directly to the skin) for 10-20 minutes, 2-3 times a day.

Re-engaging with a regular rehabilitation routine is useful to facilitate a return to normal activities.
Exercise examples in pictures
Stationary bicycle

Stretching: calf  quadriceps  hamstrings
Squat

Hamstring curl on gym ball
Single leg squat: front and side view

High step
Leg press: double leg

Leg press: single leg
Knee extension machine: double leg

Single leg

Single balance on BOSU
Hamstring curl machine: double leg

Hamstring curl machine: single leg
Forward static lunge

Side static lunge
Hopping drills
Exercise prescription

The load, volume and frequency of exercise will depend on your training goals. This chart summarises key training markers to guide exercise prescription. If you have any questions about your exercise prescription, please speak to the physiotherapist treating you.

<table>
<thead>
<tr>
<th>Required outcome</th>
<th>Action</th>
<th>Load % of 1RM</th>
<th>Number of repetitions (reps)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor control</td>
<td>Variable</td>
<td>Light load less than 30%</td>
<td>20+</td>
</tr>
<tr>
<td>Maximal Strength</td>
<td>Ecc / con / iso</td>
<td>Novice to intermediate 60-70%</td>
<td>8-12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Advanced 80-100%</td>
<td></td>
</tr>
<tr>
<td>Power</td>
<td>Ecc / con</td>
<td>Upper body 30-60%</td>
<td>3-6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lower body 0-60%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Advanced 85-100%</td>
<td></td>
</tr>
<tr>
<td>Hypertrophy</td>
<td>Ecc / con / iso</td>
<td>Novice to intermediate 70-85%</td>
<td>Novice - intermediate 8-12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Advanced 70-100%</td>
<td>Advanced 1-12</td>
</tr>
<tr>
<td>Endurance</td>
<td>Ecc / con / iso</td>
<td>'Multidimensional' Light loads with high reps and moderate loads with fewer reps</td>
<td>Novice 10-15</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Advanced 10-25 to fatigue</td>
</tr>
<tr>
<td>Older adults Strength + hypertrophy power</td>
<td>60-80%</td>
<td></td>
<td>8-12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>30-60%</td>
<td>6-10</td>
</tr>
<tr>
<td>Number of sets</td>
<td>Rest period (minutes)</td>
<td>Repetition speed</td>
<td>Frequency per week</td>
</tr>
<tr>
<td>----------------</td>
<td>-----------------------</td>
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</tr>
<tr>
<td>Prior to strength work</td>
<td>Less than 1</td>
<td>Focus on control rather than velocity but can vary</td>
<td>5-7 Twice a day</td>
</tr>
<tr>
<td>1-3</td>
<td>2-3</td>
<td>1:1:1</td>
<td>Novice 2-3 Intermediate 3-4 Advanced 4-6</td>
</tr>
<tr>
<td>Multi-joint</td>
<td>2-3</td>
<td>Explosive tempo</td>
<td>Novice 2-3 Intermediate 3-4 Advanced 4-6</td>
</tr>
<tr>
<td>Novice to intermediate 1-3 Advanced 3-6</td>
<td>Novice to intermediate 1-2 Advanced 2-3</td>
<td>Novice slow-moderate Advanced – mixture of speeds</td>
<td>Novice 2-3 Intermediate 4 Advanced 4-6</td>
</tr>
<tr>
<td>High-volume multiple sets</td>
<td>1-2 for high reps (15-20) Less than 1 for moderate reps (10-15)</td>
<td>Moderate to fast velocity for high reps Slow velocity for lower reps</td>
<td>Novice 2-3 Intermediate 3 Advanced 4-6</td>
</tr>
<tr>
<td>1-3 1-3</td>
<td>1-3</td>
<td>Slow to moderate High rep velocity</td>
<td>2-3</td>
</tr>
</tbody>
</table>


Exercise programme adapted from the following scientific research: Kise NJ, Risberg MA, Stensrud S, Ranstam J, Engebretsen L, Roos EM (2016). Exercise therapy versus arthroscopic partial meniscectomy for degenerative meniscal tear in middle aged patients: randomised controlled trial with two year follow up. British Medical Journal, 354:i3740
Contact us
If you have any questions or concerns please contact the Physiotherapy Department, t: contact 020 7188 5094, Monday to Friday, 8.30am-5.00pm

Pharmacy Medicines Helpline
If you have any questions or concerns about your medicines, please speak to the staff caring for you or call our helpline. t: 020 7188 8748, Monday to Friday, 9am-5pm

Your comments and concerns
For advice, support or to raise a concern, contact our Patient Advice and Liaison Service (PALS). To make a complaint, contact the complaints department.
t: 020 7188 8801 (PALS)  e: pals@gstt.nhs.uk
t: 020 7188 3514 (complaints)  e: complaints2@gstt.nhs.uk

Language and accessible support services
If you need an interpreter or information about your care in a different language or format, please get in touch.
t: 020 7188 8815  e: languagesupport@gstt.nhs.uk

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