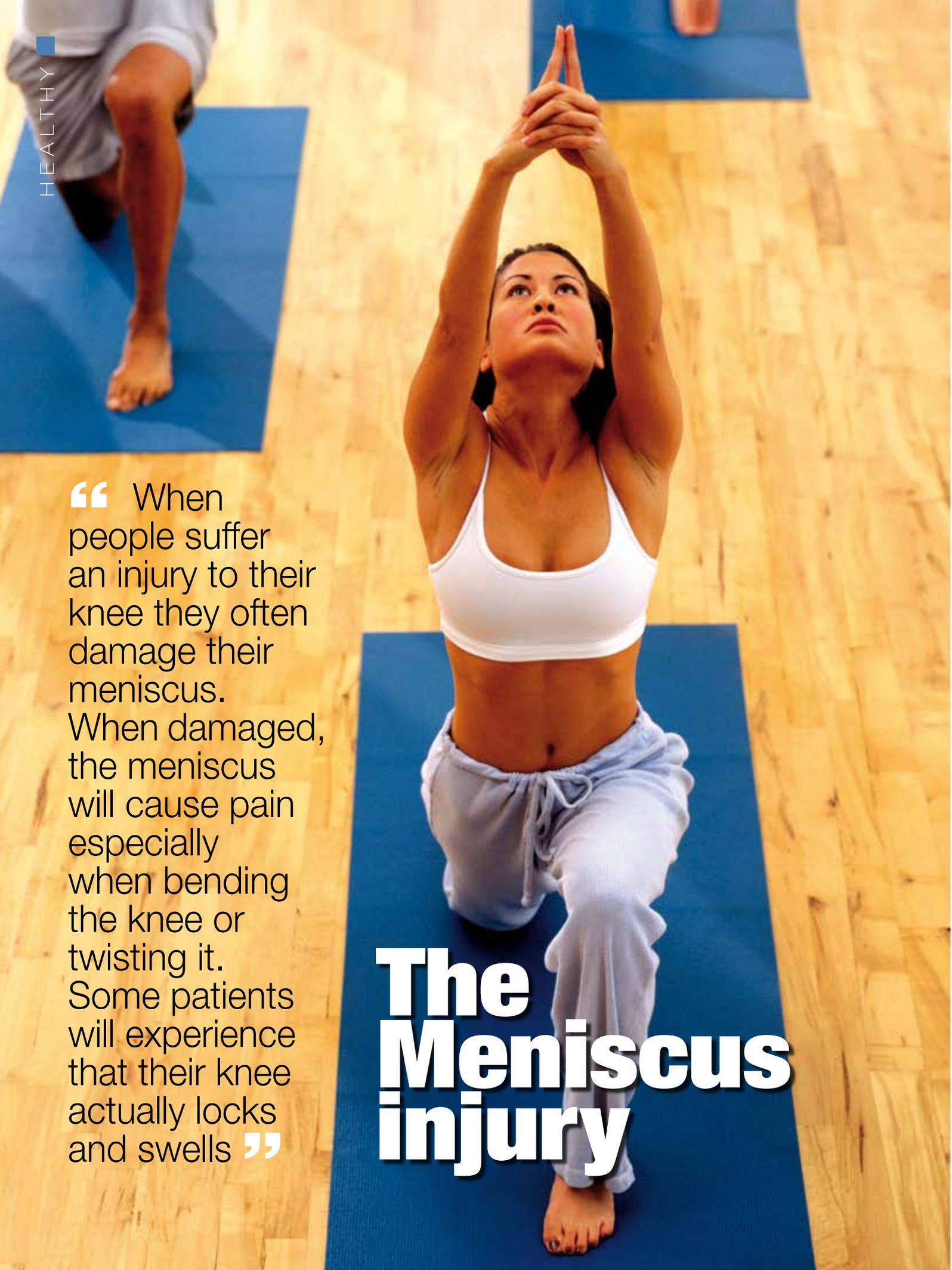


“ When people suffer an injury to their knee they often damage their meniscus. When damaged, the meniscus will cause pain especially when bending the knee or twisting it. Some patients will experience that their knee actually locks and swells ”

# The Meniscus injury





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**A** damaged meniscus can easily be treated by arthroscopic surgery (key-hole surgery) by which it can either be fixated using an absorbable device or the damaged part of the meniscus is removed.

Normally the patient will be full weight bearing the same day as he or she is operated, and will regain normal function after 3-6 weeks depending on the severity of the damage to the knee.

If we look at the structure of the meniscus we will see a huge difference between the meniscus on the inside of the knee and the meniscus on the outside.



The medial meniscus (the inner meniscus) is injured in over 90% of all knee accidents. The medial meniscus is C-shaped and the femoral bone is convex, meaning rounded, while the tibial bone is also rounded but downwards. This makes a very big

area for the inside of the joint to give way to pressure when the knee is loaded. This is the main reason for patients who suffer a meniscus injury not to suffer from osteoarthritis within just a few years' time.

An injury to the lateral meniscus (the outer meniscus) implies a more severe condition since this meniscus is round and by its shape prevents the knee from placing a very heavy load on a very small area, considering that the femoral bone is also round on the outside, but the tibial bone at this place is rounded upwards, causing the patient with a damaged outer meniscus to develop osteoarthritis very quickly.

## Why do some menisci heal and others do not?

The main reason why some menisci heal and others do not is the vascular condition of menisci. The other main reason is the type of injury to the meniscus.

According to vascular conditions : the outer third of the meniscus (referred to as red area) has a 100% vascular condition. This means that all lesions with the possibility to heal (depending on the type of lesion) will eventually heal when surgically fixated using an absorbable device. The middle third of the meniscus (referred to as red/white area) has a vascular condition of 65 - 70%. The inner third of the meniscus (referred to as white area) has a minimum vascular condition and the possibility to heal in this area is near to zero. The overall possibility for conservative spontaneous healing is about 40 - 60% within 6 weeks where the patient should avoid twisting and bending the knee. If the patient suffers from pain and eventually locking/impingement after more than 6 weeks, he will need to be operated

by arthroscopic surgery. This brings us to the other main reason why a damaged meniscus heals or not. If a meniscus has suffered a vertical tear (meaning up-down) in the red or red/white area it can be surgically repaired using an absorbable device and, if so, the meniscus will heal with a success rate of 70%. If the meniscus has a horizontal tear, fixation is not applicable since the two leaves of the meniscus move independently, contrary to what happens in a vertical lesion, where the parts are pushed together. In the event of a horizontal lesion, the damaged tissue will have to be removed until normal meniscus tissue appears. Doctors will always try to leave as much of the meniscus as possible to avoid the development of osteoarthritis or at least delay it as much as possible. If the patient has a fixable lesion he will have to wear a brace for two weeks, and avoid bending the knee beyond 90 degrees for 8 weeks following the operation.

This is due to the fact that the meniscus moves forward and backwards when loading the knee and when the knee is flexed beyond 90 degrees the meniscus slides backwards and actually lays 7-10 mm outside the tibial bone where it initially would lock the knee when damaged. When fixated, the fixation will break if loaded on the tibial bone at its border. Therefore, the patient is not allowed to place load on the knee when it is flexed beyond 90 degrees until 12 weeks following the surgical procedure. By this regimen, 70 % of all fixated meniscus will heal reducing the patient's risk of developing osteoarthritis in the future. Again, even if the meniscus is just partly removed related to the lesion, this will prevent the cartilage from being partly damaged due an impinged meniscus which is also going to reduce the risk of osteoarthritis, since the cartilage is intact.