

Menisci

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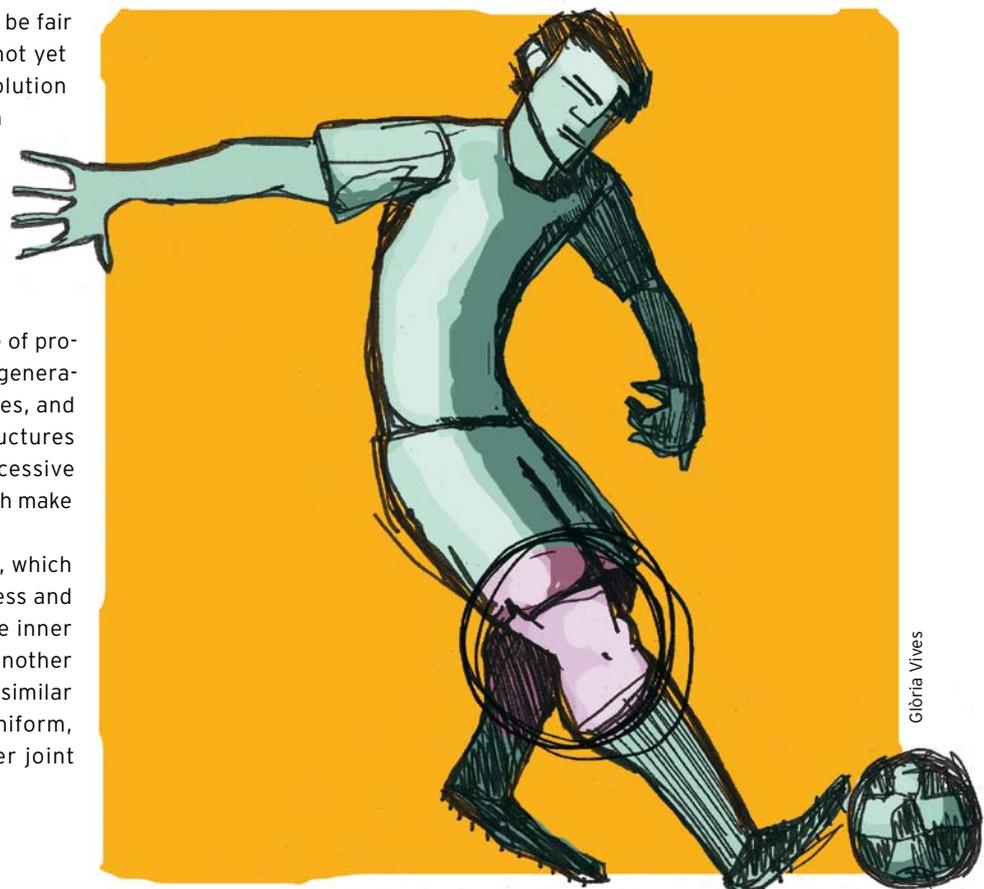


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The menisci are small fibrous cartilage structures found in the knee, the main function of which is to prevent direct contact between the two bones which make up the joint, the femur and the tibia, in order to facilitate its movement and avoid the wear which would be caused by direct friction between the bony surfaces. The presence of these protective elements is hugely important, as this is the largest joint in the body and has the greatest challenge because it bears our bodyweight. It would be fair to say that the knee joint has not yet fully adapted to biological evolution as a result of which we human beings, unlike other vertebrate animals, can stand upright with legs straight and easily move about. However, the price to be paid for this comes in the form of the relatively frequent occurrence of a range of problems, including arthritis, a degenerative process of the joint surfaces, and injuries to the menisci, the structures responsible for preventing excessive wear and tear of the bones which make up the joint.

Each knee has two menisci, which are a few millimetres in thickness and of different shapes: one on the inner part, in the form of a 'C', and another on the outer part, with a form similar to an 'O'. Their shape is not uniform, but adapts to allow for proper joint

movement between the surface of the femur, the end of which has two rounded protuberances, and that of the tibia, which has two relatively flat surfaces. By acting as a kind of bearing, hard-wearing but not rigid, the menisci provide a better fit for the bones which meet at the knee, distributing the forces and pressures acting on them when standing upright or moving about.



And this function is particularly significant, because it is specifically thanks to the menisci that the knee bones, with their very different shapes, can flex properly, and more importantly are well protected, reducing friction and consequently the wear and tear which would occur if this cartilage did not exist.

However, the menisci can be quite easily injured. A forced movement or violent shock to the knee, above all if the joint is semi-flexed, can cause different types of injury: a dislocation, a sprain or a break. This most commonly happens when playing sport, for example a footballer turning suddenly while the foot remains anchored to the ground because of his boot, while also frequently occurring in other sports such as skiing, basketball and handball. It can, however, happen in any situation in daily life: simply by making a sudden turn, bumping into something, taking a knock...

If such an injury occurs you may hear a strange noise, a kind of crack, along with localised pain on one side of the knee or the other, depending on which meniscus has been damaged. There may on occasion be inflammation of the joint, with a discharge of fluid within. All these problems will, however, generally subside and disappear over just a few days. It is possible that a fragment of meniscus may have become displaced, restricting movement or even locking the joint, making it absolutely impossible to move and leaving it in a more or less flexed position. This blockage can sometimes be permanent, but will most often cure itself, or can be dealt with by manipulation to free up the joint.

The after-effects depend on the type of injury, and also the activity involved: the same problems will not be suffered by an athlete as an office worker. It may on occasion be a sprain which will quickly scar over, or there may be periods of pain and inflammation, cracking of the joint, it may lock at any time or become unstable and give way when weight is placed on the foot. And this joint failure can happen unexpectedly, and the danger that would result in certain situations: if you are crossing the road, driving, climbing up stairs, etc. Meanwhile, if the injury does not heal itself and the right treatment is not given, what will most commonly occur is that

the knee bones suffer extreme wear and tear, in other words arthritis, with all the difficulties associated with this condition.

The problem can at times be cured through rest or by immobilising the knee for a period of time, to allow the sprained meniscus to scar. In other cases, though, if the cartilage has become dislocated or broken, an operation will be required. The traditional form of surgery involves opening up the joint and removing the injured meniscus. The leg is then immobilised using plaster, and after a few weeks a fibrous cartilage similar to the original meniscus will have developed. These days, though, the procedure is not often carried out. In fact, the technology used to assist in the diagnosis and treatment of meniscus injuries has taken great leaps forward, undoubtedly because it is a condition which particularly affects elite athletes.

The technique applied today is known as arthroscopy, and this is used to examine the injury to the meniscus, and very often to apply the appropriate treatment and achieve a rapid recovery. Arthroscopy involves small incisions made in the skin on either side of the knee allowing a number of different elements to be inserted inside the joint for both diagnosis of the injury and treatment. A narrow tube fitted with an optical system allows the doctor to view the internal structures directly from the outside with considerable precision so as to establish their condition. Forceps and other delicate surgical instruments can be inserted to manipulate the tissues from the outside, for example to remove the damaged part of the meniscus, allowing it to scar so that a new fibrous cartilage structure can form to replace the original.

Arthroscopy offers various benefits. To begin with, it makes the diagnosis of meniscus injuries much more convenient and precise than was previously the case, with the need for an x-ray having first injected air or radiopaque substances into the joint. As for treatment, unlike traditional surgery this technique allows patients to be up and about the next day, a particularly important factor in a rapid recovery. In no time at all they will once again be able to engage in completely normal activity.