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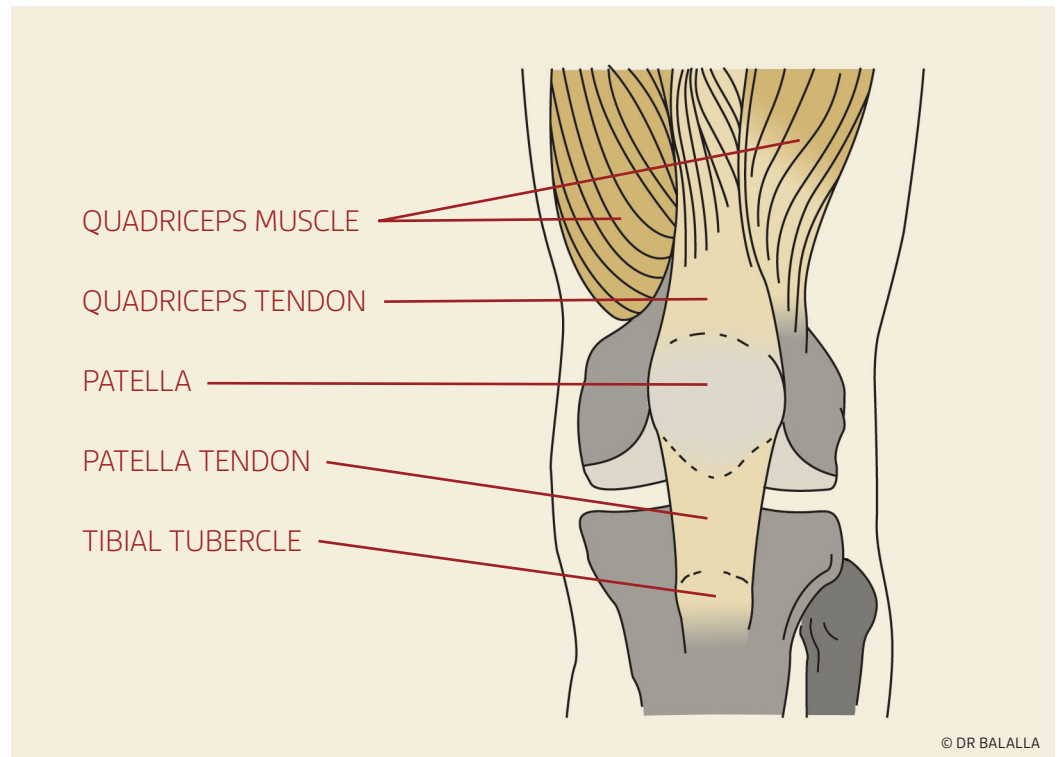
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Extensor Mechanism Injuries

What is the extensor mechanism of the knee?

The extensor mechanism is the combination of the quadriceps muscle on the front of your thigh, the quadriceps tendon, the patella, and the patella tendon which inserts onto the front of the shinbone. The quadriceps muscle serves to straighten the knee. The ability to straighten the knee is important during walking, rising up from a chair, and running.



Where can it be injured, and how?

The extensor mechanism may be injured at any of these points, but the most common injury is a fracture of the patella. Less commonly, the patella tendon or quadriceps tendon may be injured. The injury may occur due to a traumatic or degenerative process. Traumatic injuries occur when the tendon is cut during an accident. Alternatively the tendon may undergo degenerative change due to age or chronic disease, such as diabetes, rheumatoid arthritis, or long-term steroid use. The weakened tendon finally ruptures during a low energy event such as a stumble. Tendon injuries may be complete or partial.



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Patella fractures are nearly always associated with a direct blow to the knee. The kneecap can break into two or more pieces. It is important to have this injury assessed with xrays as the underside of the patella consists of smooth cartilage which slides on the front of the knee joint. If there is any irregularity of this cartilage, this may increase the risk of arthritis of the patella.

Quadriceps tendon ruptures and patella tendon ruptures which occur secondary to a degenerative process usually involve the tendon being pulled off its bony attachment site on the patella. The tendon usually needs to be directly reattached to the bone.

What are the symptoms of an injury to the patellar tendon or the quadriceps tendon?

There is usually pain on the front of the knee, correlating with the site of rupture. The pain is usually worse when activating the extensor mechanism, for example, by lifting the leg up in the air while lying down. In complete ruptures, straight-leg raising may be impossible. There may be tenderness, or a palpable defect at the site of the rupture as it gaps open.

How is it treated?

The treatment is dependent on the site of the rupture. Partial injuries to either the patella tendon or quadriceps tendon, or fractures of the patella which have not displaced significantly, can be treated in an extension knee brace. Complete ruptures of the tendons, or displaced patella fractures will require surgery. Patella fractures are fixed with wires or screws. Tendon ruptures are fixed with strong, non absorbable sutures which run through the patella bone into the tendon. After surgery, a knee brace is applied for 6 weeks. The knee is assessed at the end of surgery to determine the range of knee movement where there is no gapping of the repair. The patient is able to move their knee out of the brace for non-loaded exercises within this range.

Is non-operative management possible?

Yes, in the case of partial injuries to either the patella tendon or quadriceps tendon, or fractures of the patella which have not displaced significantly. Non operative management of these injuries is ideal. Patients with other medical problems where surgery would be an unacceptable risk may also be treated with bracing.

Will I need physiotherapy?

Yes in most cases. The knee will have restricted movement following healing of the injury. In particular, the knee will feel tight on deep bending. This will need to be overcome with stretching exercises. The muscles of the thigh waste rapidly following injury, and these will need to be strengthened.



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Will I need to have the wires, screws or stitches removed?

The stitches from tendon repairs are not removed. Wires or screws can also remain in, as long as they are not prominent. Wires in particular can be felt under the skin when the swelling subsides. If this is an issue, they may be removed ideally after 6 months from the time of initial surgery.

This resource is provided by Dr Balalla for the information of his patients. Every patient's condition is unique and this information should not substitute for a full consultation with a qualified orthopaedic surgeon.

To arrange a consultation or to discuss any of the information above, please phone Dr Balalla's rooms on (02) 9680 1315, or email enquiries@drbalalla.com.au.

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