

Distal femoral opening wedge osteotomies

1 Before you start

Read the surgical planning report prepared for the case. Ideally, this should be made available within the operating theatre for checking purposes.

Test the fitting of the surgical guide¹ on the bone model. This is a patient specific position and will differ from case to case (although always in the area of the implant position). The guide should stably fit onto the bone model within the region marked on the bone as shown by the guide outline. If you are not comfortable with the fit of the guide on the bone model, do not use the guide in surgery.

All instruments used for the surgery must correspond to the dimensions/reference numbers indicated in the surgical planning report. If the parts² do not fit into the guide, do not use the guide during surgery.

The guides (and bone models) must be cleaned and sterilized. Please follow the recommendations in the instructions for use document, that is provided with the guides.

2 Ensure good guide exposure

With the patient lying supine, make a lateral incision, starting at the lateral epicondyle and continuing up to 15 cm cranial, in line with the lateral intermuscular septum.

Elevate the vastus lateralis from the intermuscular septum antero medially.

Clear the bone with a periosteal elevator, and to ensure a good guide fit, make sure there is sufficient soft tissue clearance in the metaphyseal area¹.

3 Position guide

Position the surgical guide¹ onto the distal femur by referring to the guide outline on the bone model (step 1). Make sure there are no gaps and there is no soft tissue trapped underneath the guide. Ensure the guide is positioned as distally as possible. Affix the drill guide firmly onto the bone by inserting K-wire(s)² into the open K-wire hole(s).

Uni-cortical fixation is sufficient if it provides a good fit on the femur. Ensure that the k-wires² do not obstruct the use of instrumentation by cutting/ bending them out of the way.

4 Drill screw holes

Drill through the guide's drill sleeves using metal guides² and drill bits². Drill the pilot screw holes bi-cortically.

Insert the metal guides² as far as possible into the drill sleeves.

5 Osteotomy

Where an open cut slot is used, gently saw² through the connectors on the far side of the slot to open it fully.

The top of the cut slot is parallel to the hinge axis and the distance between them is noted on the side of the slot.

Cut through the slot, keeping the blade² perpendicular to the top of the slot where possible.

Use the depth indication on the saw blade to control the depth of the cut.

Make sure to protect the neurovascular structures in the back.

Avoid cutting too deep as this will jeopardize the bony hinge.

6 Remove guide

Remove all K-wires² and remove the guide from the bone. Use lavage to clean the region of any debris that was generated.

7 Affix plate

Use a spreader to open the wedge slightly. Approximately position the plate with the drill bit/K-wires/temporary screws in a proximal and distal hole, according to the surgical technique of the implant. Open the wedge until the plate's screw positions align with the drilled holes (step 4). Refer to the surgical technique of the implant in order to determine the fixation of the implant.

¹ Materialise cannot guarantee a successful surgery if the guide is not used as described in the case report provided.

² Use only the instruments that are defined in the case report provided. If the parts do not fit into the guide, do not use the guide during surgery.

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For more information:

ortho@materialise.com – ortho.materialise.com +32 16 396666