

# SURGICAL TECHNIQUE

## HIGH TIBIAL OSTEOTOMY APPROACH

The technique presented below is one of the surgical techniques possibilities. The choice is made according to surgeon's preferences. Use an antero-medial approach to expose the proximal tibia metaphysis.



1. The patient is positioned in a supine position on the operating table. The procedure is performed under pneumatic tourniquet and a small pillow is placed under the buttock of the operated side in order to maintain the limb in neutral position.

2. An 8 cm slightly oblique vertical incision is made along the antero-medial surface, running over the joint space down to under the tibial tuberosity.

3. A single-plane incision is made through the periosteum; then the hamstring and the medial collateral ligament (MCL) are retracted posteriorly thanks to the Care + retractor.

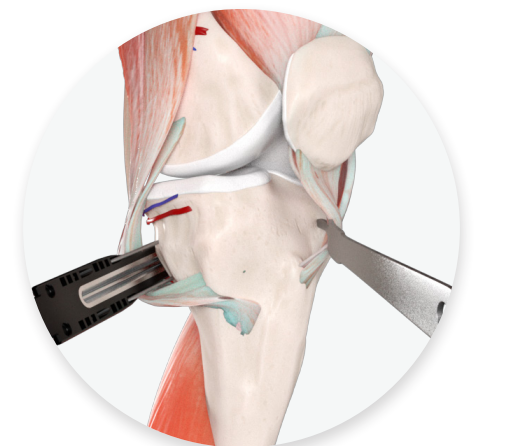
The wider the angular correction is, the more the hamstring and MCL should be released distally.

**CAUTION:** if the release is adequate, the opening of the osteotomy and the insertion of the bone graft can be performed with no risk of tearing the lateral cortical hinge. If it is not, forcing the graft in may tear the hinge, thus seriously jeopardizing complete bone healing. ie: pseudarthrosis.

4. Position the Care+ retractor at the level of the wanted osteotomy cut in order to protect the vascular structures from the saw blade.

**Optional:** If the Care+ is positionned between the hamstring and the MCL, use a smaller retractor to pull back the MCL.

**CAUTION:** the groove must be positioned parallel to the front plane.



5. When its position is validated under X-ray, secure the Care+ with two divergent 2.2 mm pins.

6. Clear the deepest part of the patellar tendon down to its attachment onto the tibial tuberosity, and protect it using a retractor during the osteotomy.

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## MEDIAL CLOSING WEDGE HIGH TIBIAL OSTEOTOMY (PAGE 1 / 2)

Example of the surgical technique for the medial closing plate size 1 (BTDMD1D). The medial closing plate size 2 (BTxMD2D) follows the same steps.



### 1. Perform the first cut.

Insert two pins approximately 25 mm below the medial articular surface until reaching the external cortex and 15 mm below the tibial plateau.

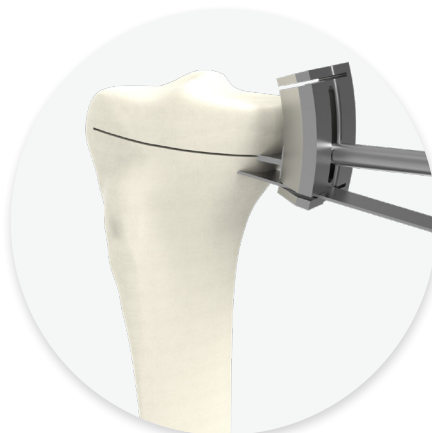
It is recommended to position **a third pin** in the opposite cortex to strengthen your hinge and prevents for cutting further.

Perform the cut stopping at 6 mm from the lateral cortex.

**N.B.:** a biplanar cut can be performed: perform the transversal anterior cut behind the tibial tuberosity to obtain an angle of 110° with the ascending cut.

### If using the medial closing plate size 2 :

Insert two pins approximately 40-50 mm below the medial articular surface and run oblique towards the tip of the fibula. Perform the cut stopping at 6 mm from the lateral cortex. The biplanar tuberosity cut is then performed.



### 2. Perform the distal 2<sup>nd</sup> cut using the cutting guide (see page 14 on how to use the guide):

- Set the chosen correction angle on the cutting guide (ANC014-1 / ANC014-2).
- Insert the blade of the cutting guide into the first cut.
- Perform the second osteotomy in the cutting slot with an oscillating saw.

Remove the bone wedge and make sure that every residual bone fragment has been removed from the osteotomy.

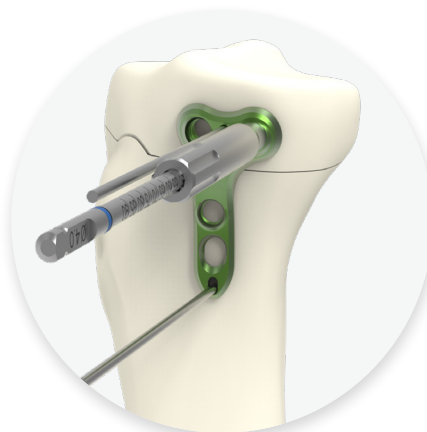
Then, carefully close the osteotomy by applying continuous pressure to the lateral lower limb while stabilizing the knee joint region.



### 3. Position the plate onto the medial surface of the proximal tibia. It is important to ensure that the zone between the distal and proximal screws is located on the osteotomy site and that the proximal screws do not penetrate the joint.

The plate can be temporarily held in position with two Ø2.2 mm pins (33.0222.200).

**The distal pin must be positioned in the distal part of the oblong pin hole.**

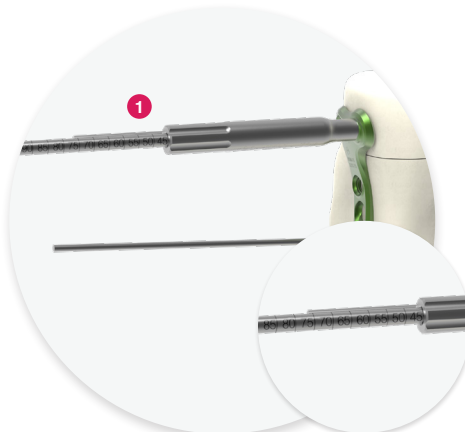


### 4. Lock the Ø4.0 mm drill guide (ANC998) into the medial hole situated above the osteotomy cut. Then, drill using the Ø4.0 mm drill bit (ANC211).

**N.B.** to help lock the drill guide in the plate, use the hexagonal part of the screwdriver (ANC975).



ANC975



### 5. Determine the screw length directly at the rear of the Ø4.0 mm drill guide (ANC998) (1), or with the length gauge (ANC210) (2). When using the length gauge (ANC210) in the epiphyseal part of the bone, please add 3 mm to the markings read. Then, insert a Ø4.5 mm locking screw (ST4.5LxxD-ST) using the screwdriver (ANC975). Final tightening of the screws must be performed by hand



ANC975

**N.B.** To ease the insertion of the Ø4.5 mm locking screw, use the countersink (ANC120-US) to widen the first cortex previously drilled. If the insertion of the screw is difficult, remove the screw, countersink, and insert the screw again.



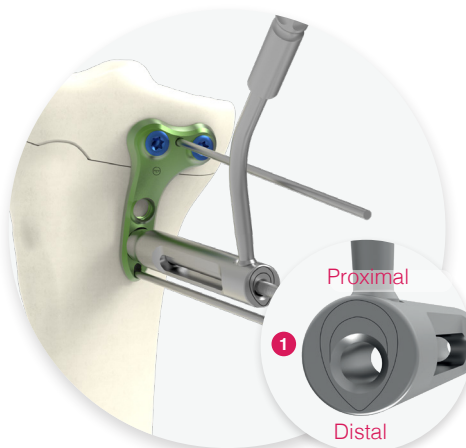
ANC120-US

# SURGICAL TECHNIQUE

## MEDIAL CLOSING WEDGE HIGH TIBIAL OSTEOTOMY (PAGE 2/2)



6. Repeat the same procedure as steps 4 and 5 for the anterior hole above the osteotomy cut.

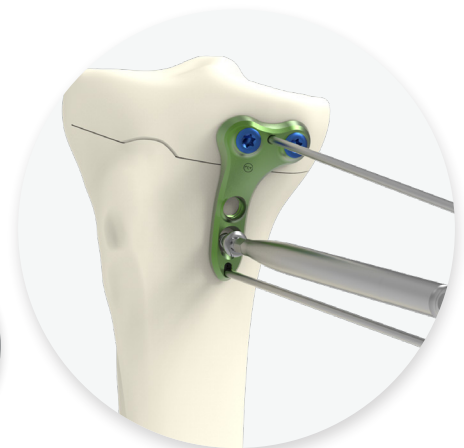


7. Drill into the **distal part of the oblong hole** using the dedicated drill guide (ANC1064) and the **Ø3.5 mm drill bit** (ANC1075). The orientation of the drill guide must be taken into account to allow compression **(1)**.

Determine the screw length directly on the drill at the rear of the drill guide or with the length gauge (ANC210).



ANC210



8. Insert a Ø4.5 mm standard cortical screw (CT4.5LxxD-ST) and perform the compression using the screwdriver (ANC975).



9. Repeat the same procedure as the steps 4 and 5 to insert the remaining Ø4.5 mm locking screw (ST4.5LxxD-ST) in the hole situated under the osteotomy cut. The pins can then be removed.



## FINAL RESULT



### MEDIAL CLOSING PLATE SIZE 2

The surgical technique for the medial closing plate size 2, follows the same steps as the medial closing plate size 1.