

Ring frame mounting for fracture treatment

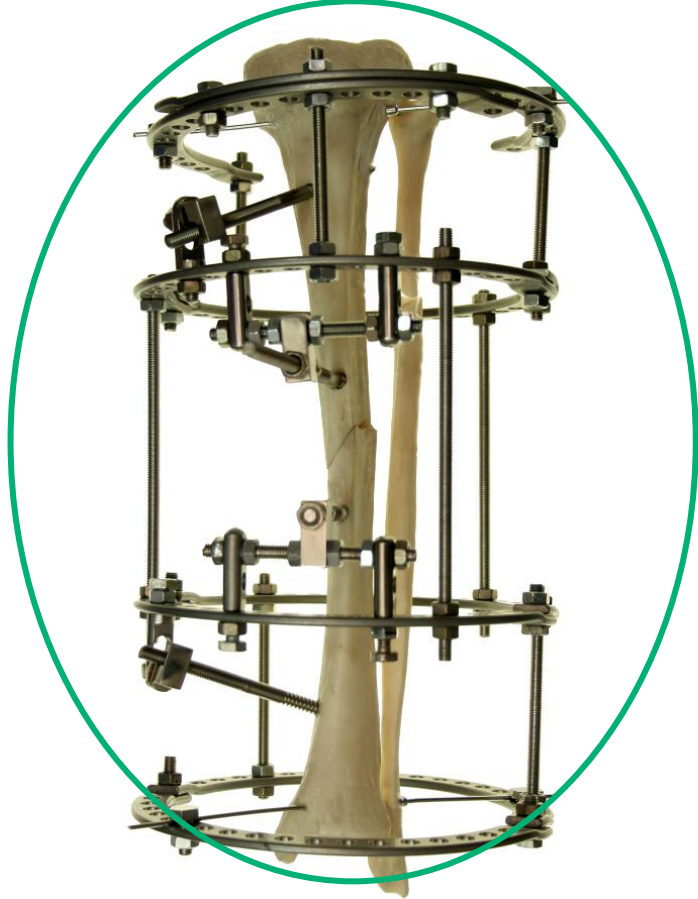
Step-by-step presentation

Leonid Solomin

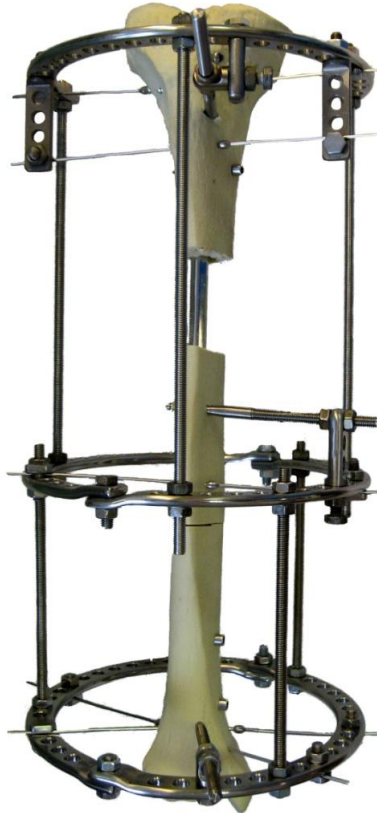
**«Basic principles of external skeletal fixation. Temporary fixation and treatment of fractures according to Ilizarov»
St.Petersburg, 2022**

Principal types of frame assembling

for fracture
healing



for bone
transport



for deformity
correction



Mounting stages of ring frame for definitive fractures treatment



Step 1. Choice of the type for frame mounting;

Step 2. Skeletal traction applying;

Step 3. Base bone components insertion;

Step 4. Frame applying, orientation, and base components fixation (wires tensioning);

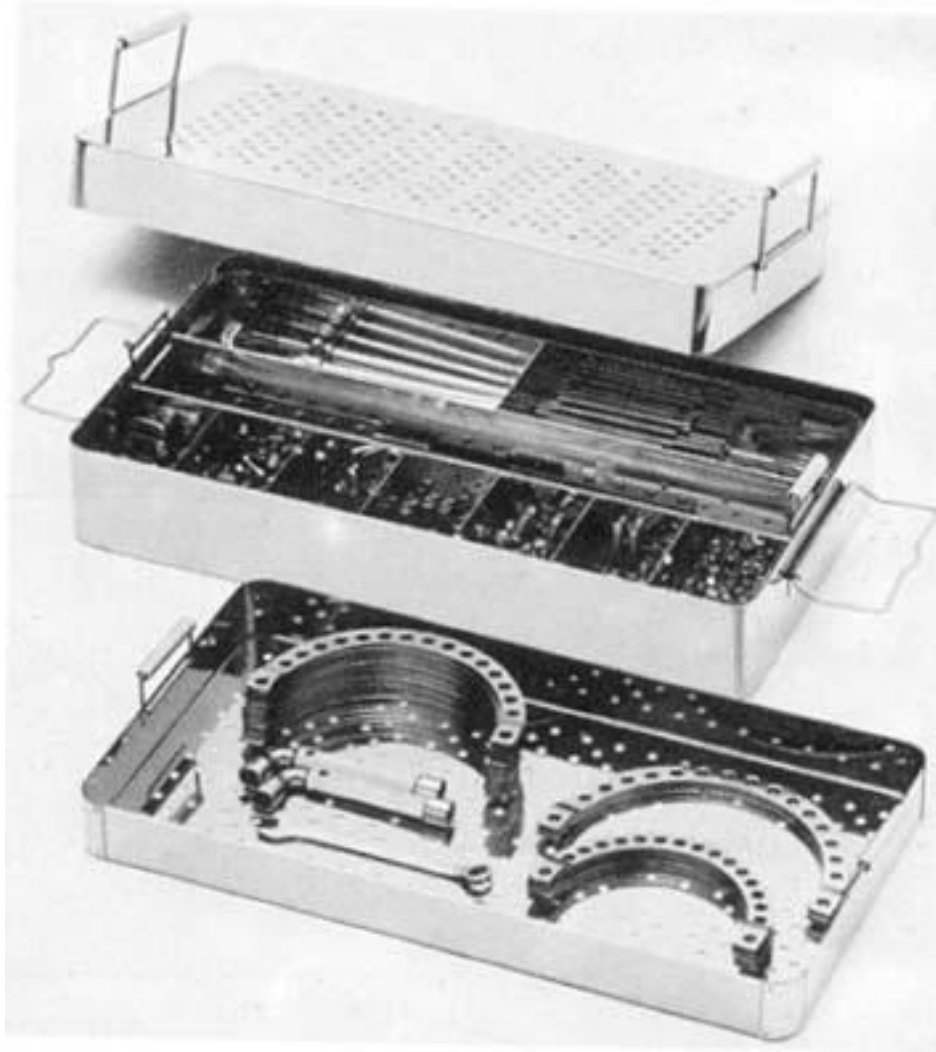
Step 5. Frame stabilization, distraction;

Step 6. Reduction bone components insertion and bone fragments reduction;

Step 7. Stabilizing bone components insertion, fixation, and diastase elimination ("compression");

Step 8. Skeletal traction dismantling, checking, cleaning and dressing.

Step 1: Choice of the type for the frame mounting



set-based

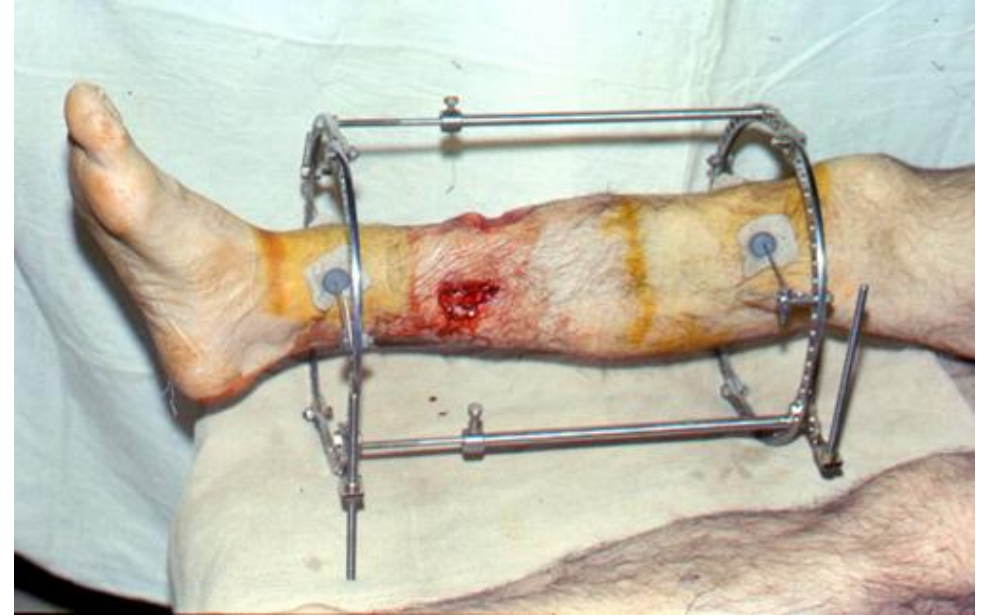


pre-assembled

Step 2: Skeletal traction



conventional

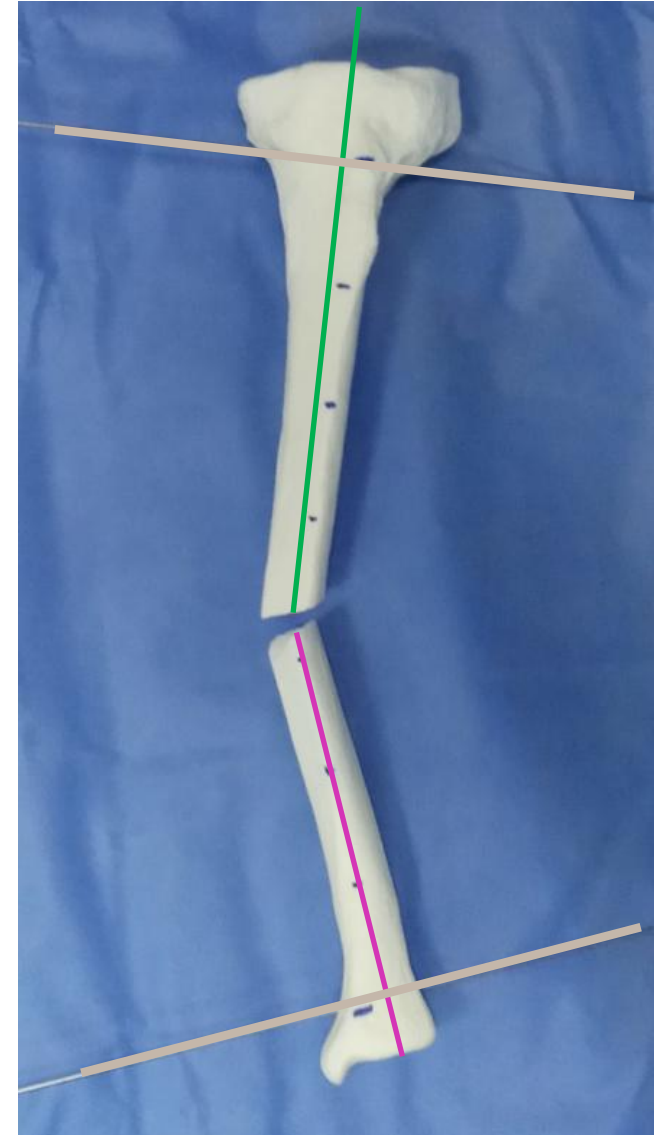


distraction device

Step 3: Base bone components insertion



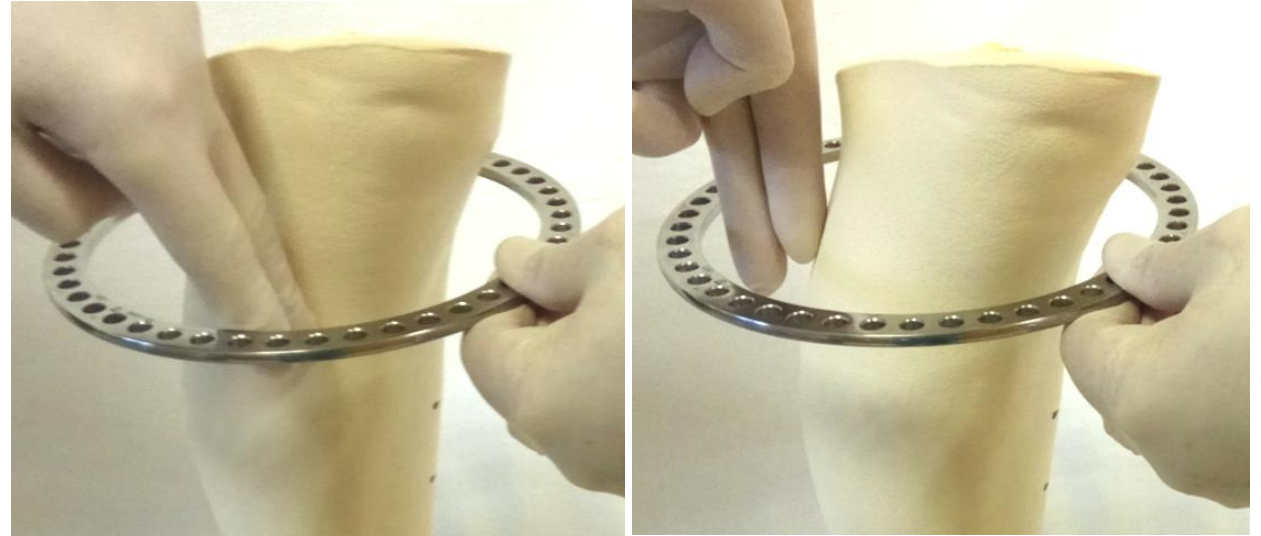
after applying skeletal traction!



Step 4: Frame applying, orientation

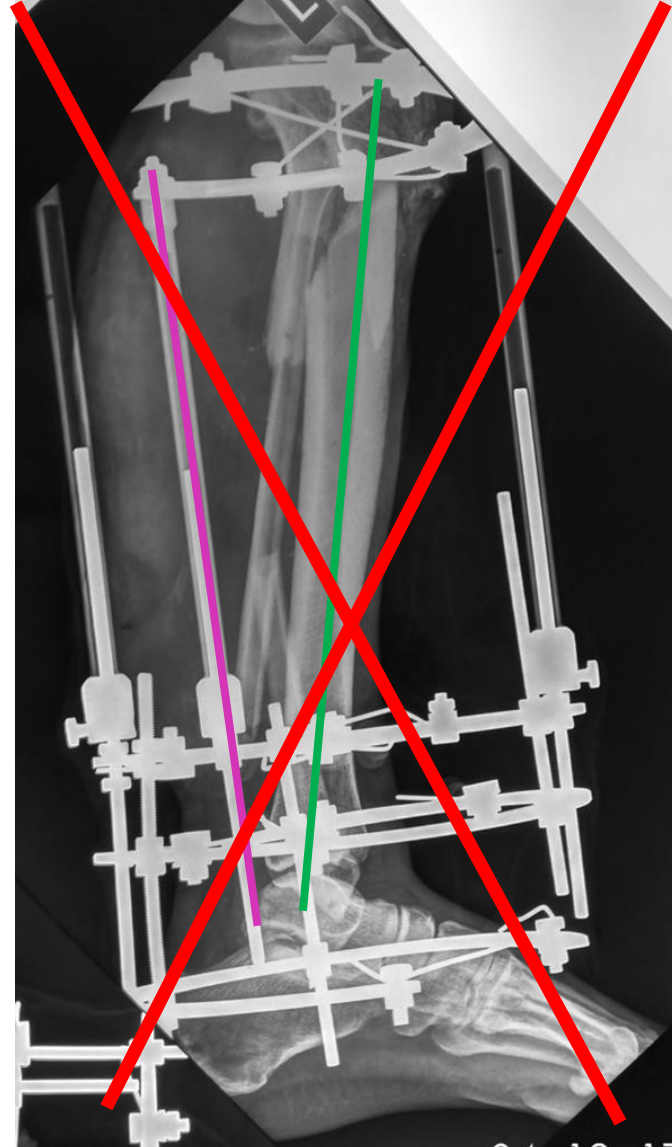
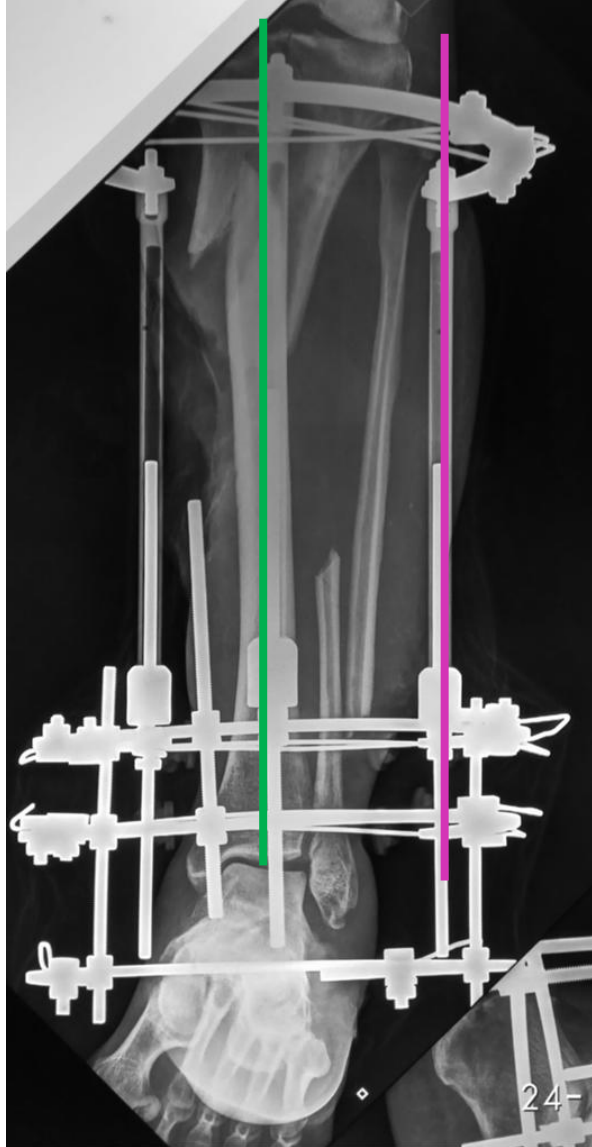


relative bone fragment axes

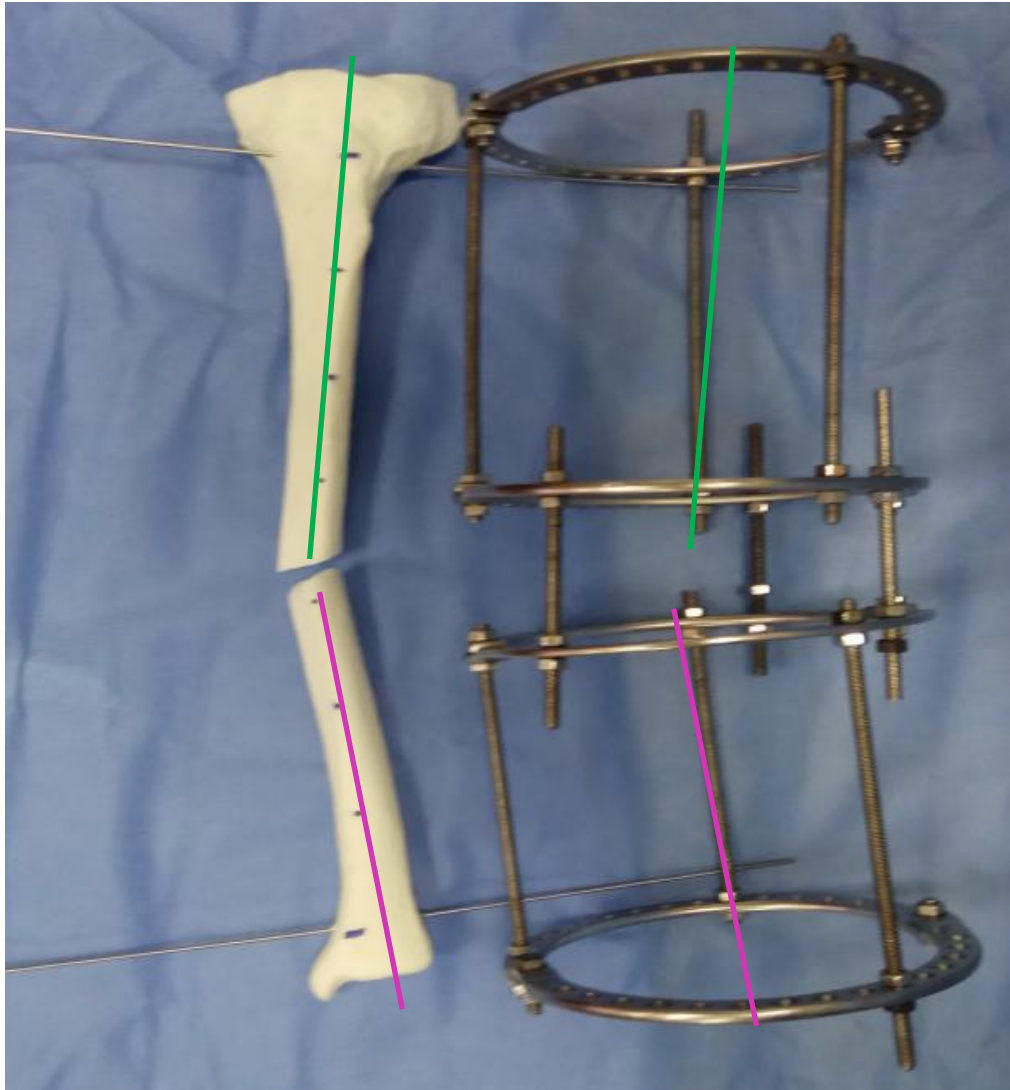


relative soft tissues

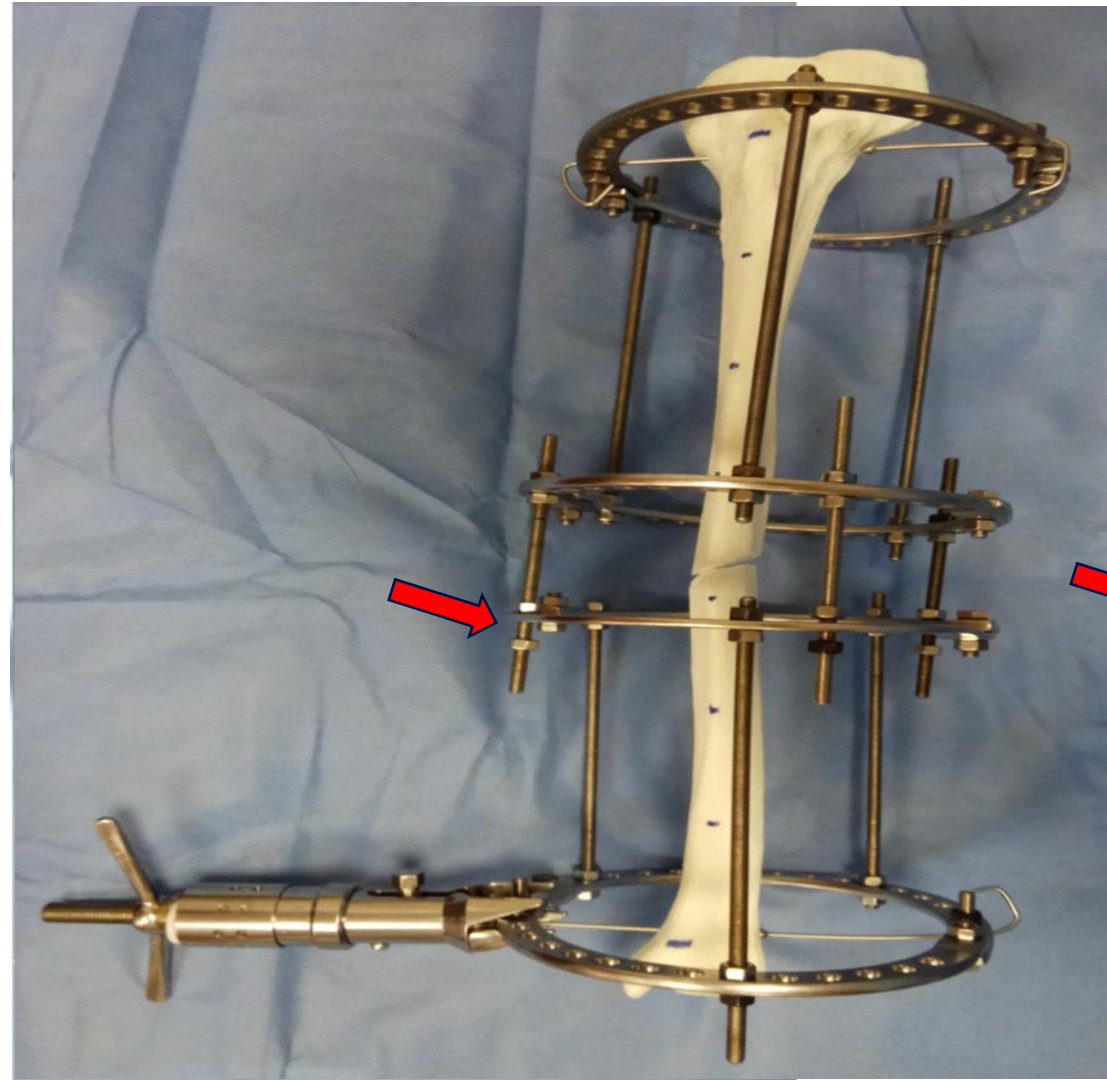
Step 4: Frame applying, orientation



Step 4: Frame applying, orientation, and base components fixation

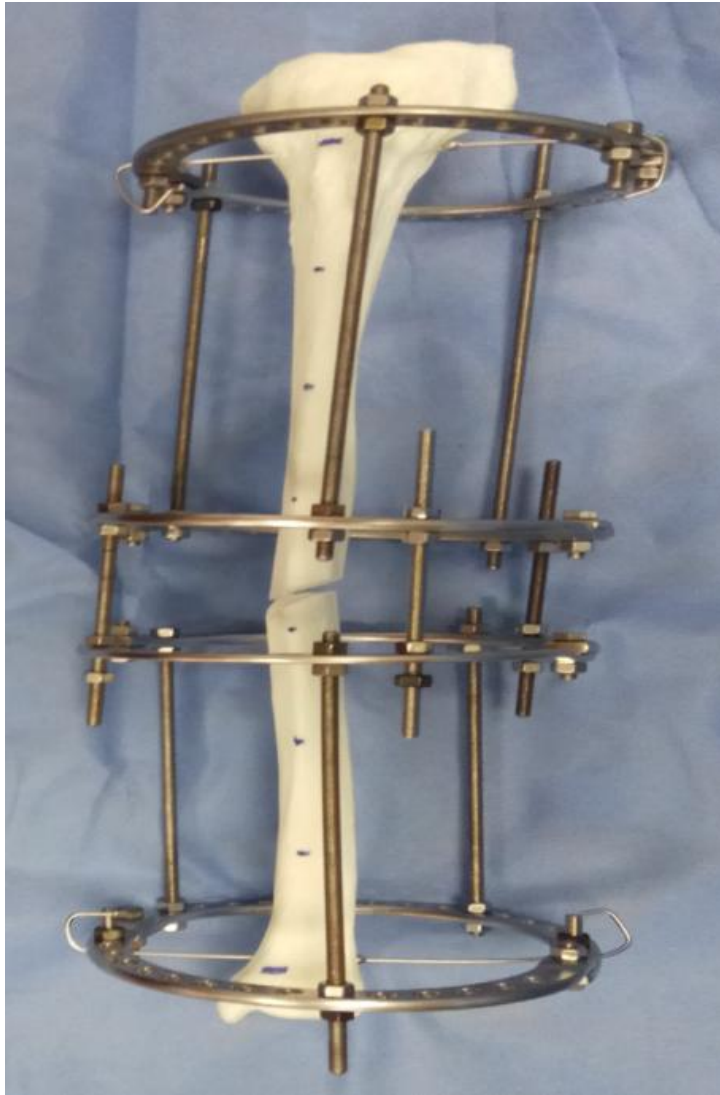


Step 4: Frame applying, orientation, and base components fixation

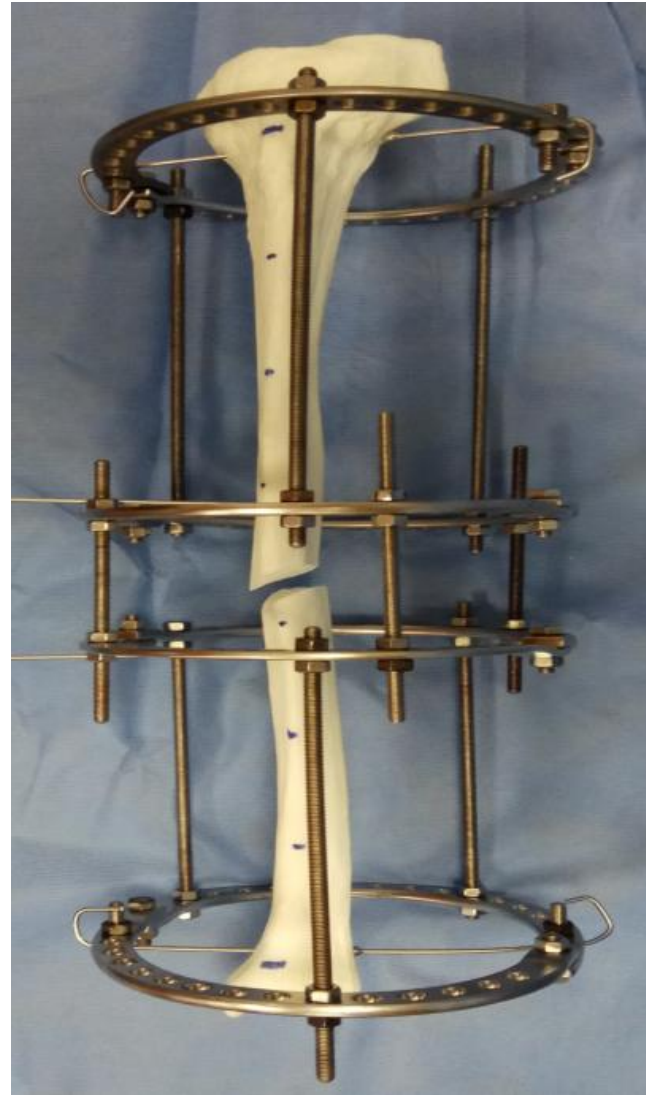


wires tensioning

Step 5: Frame stabilization, and distraction



rod's nuts tightening

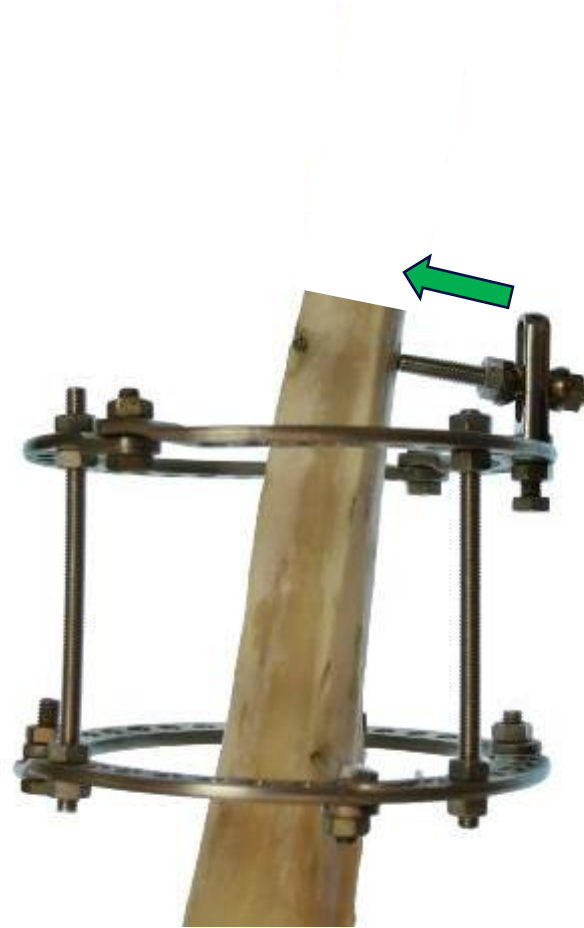
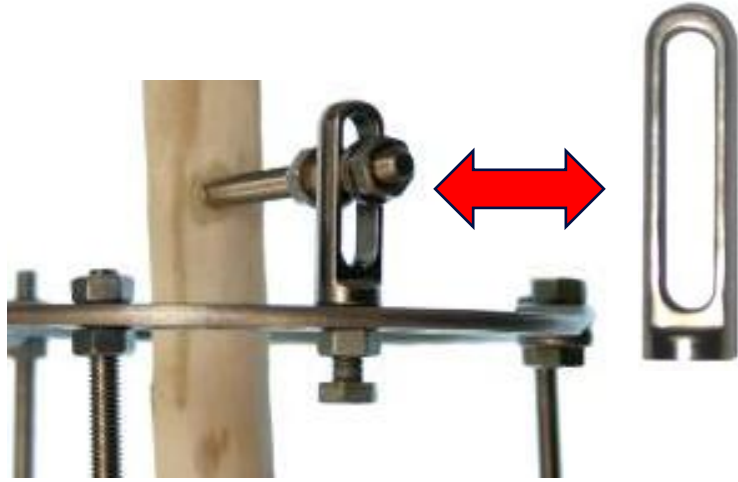


distraction

diastasis 3-5 mm

“better 1 cm more than
1 mm less”

Step 6: Reduction bone components insertion and bone fragments reduction

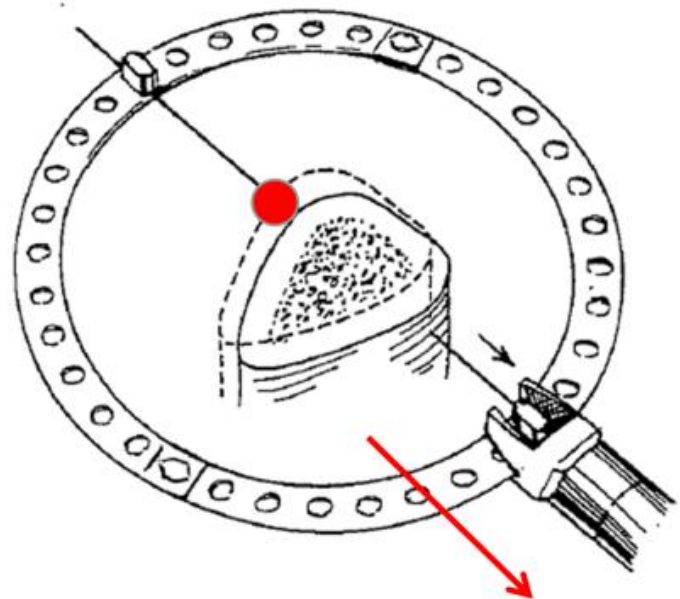


before

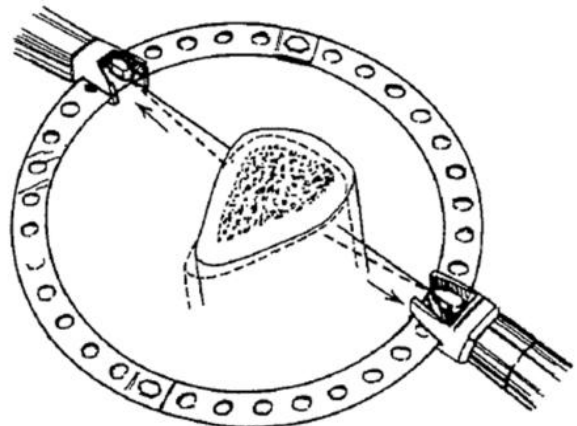
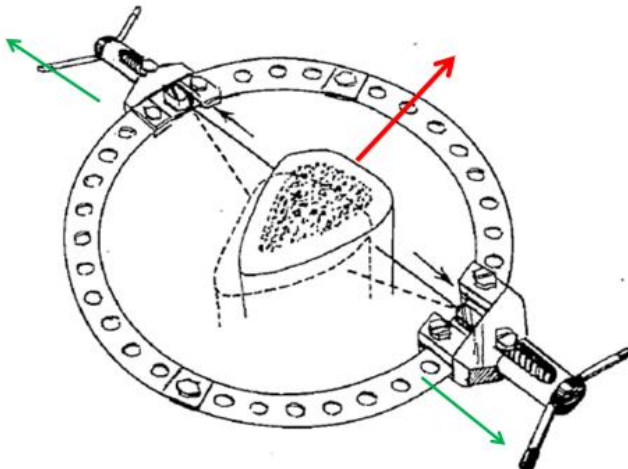
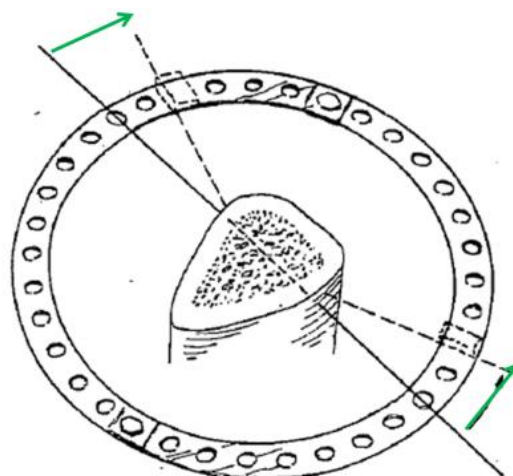


after

Step 6: Reduction bone components insertion and bone fragments reduction

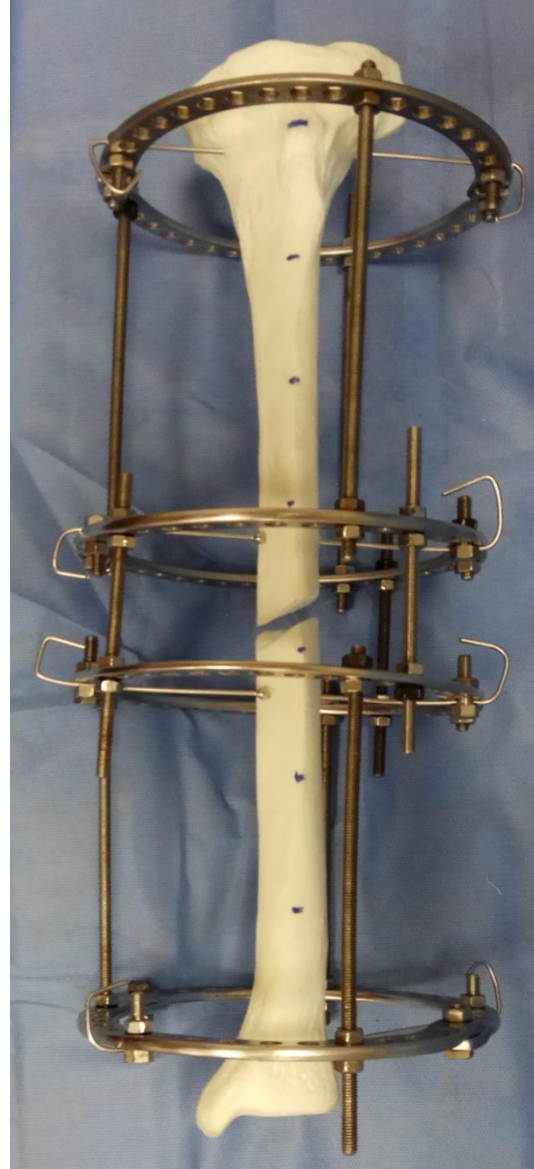


one-plane

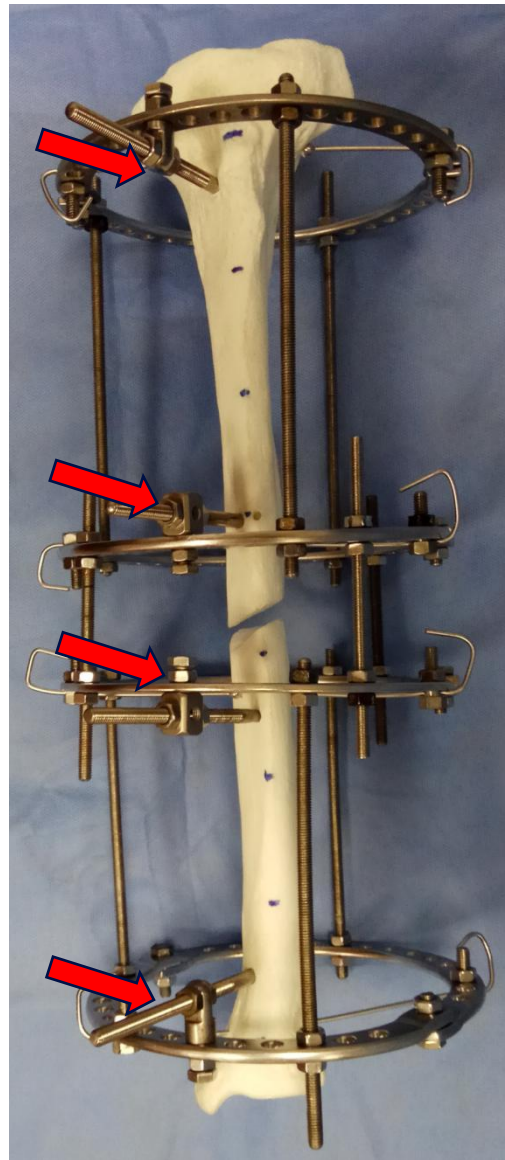
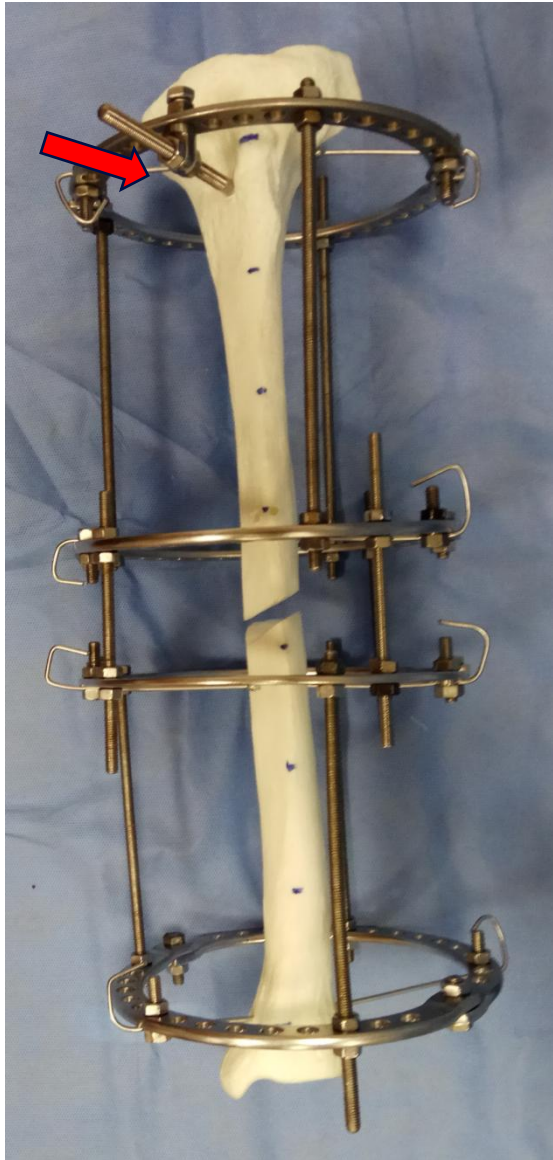


two-plane

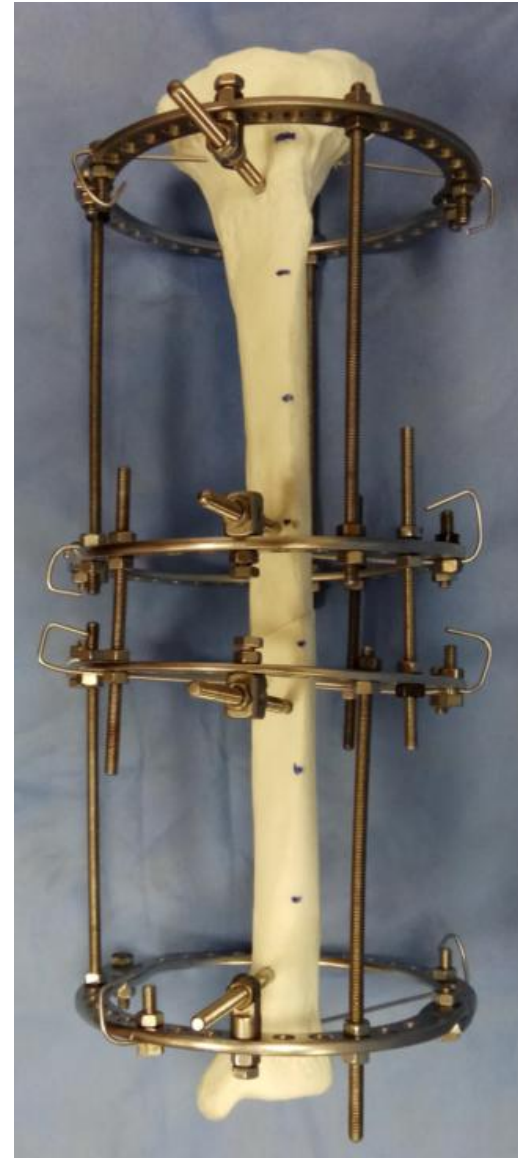
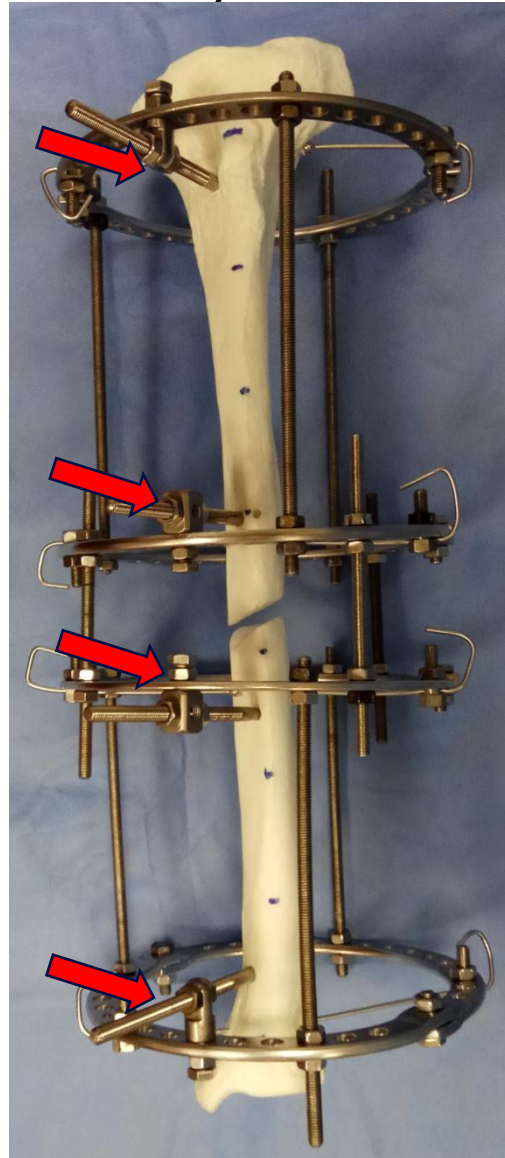
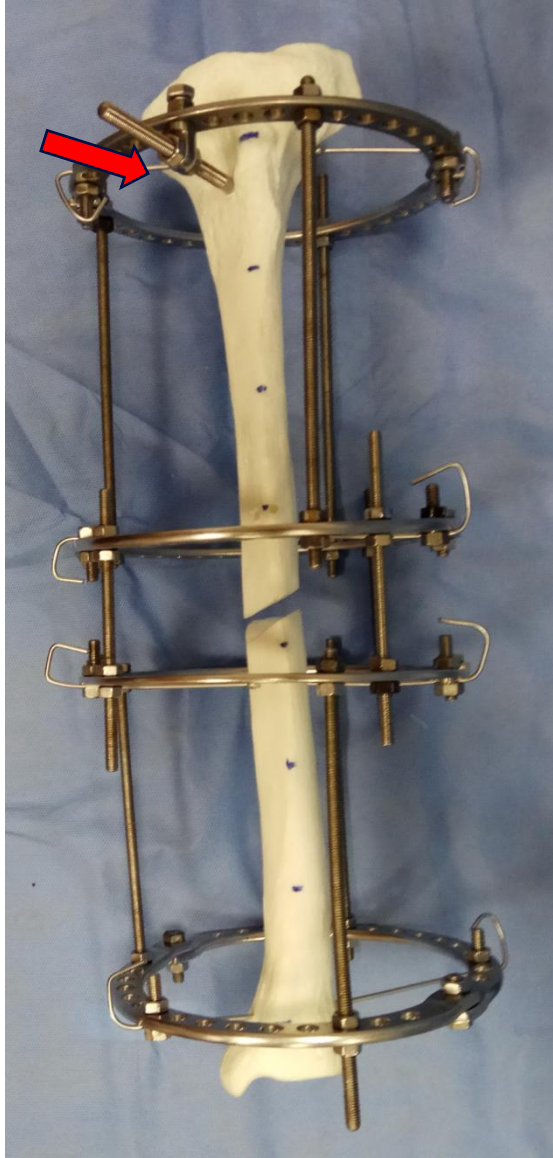
Step 6: Reduction bone components insertion and bone fragments reduction



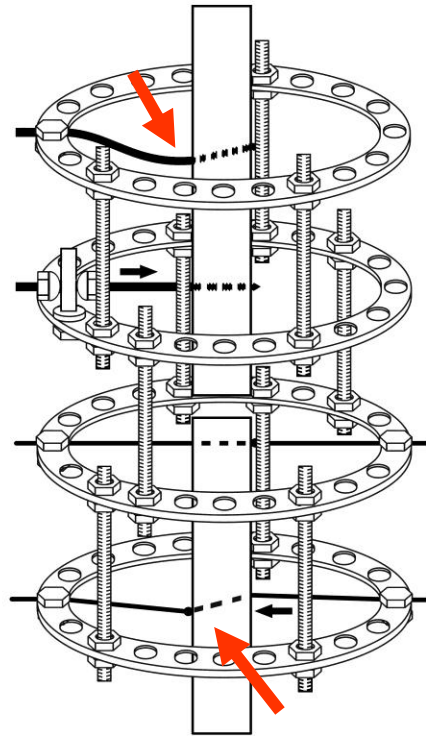
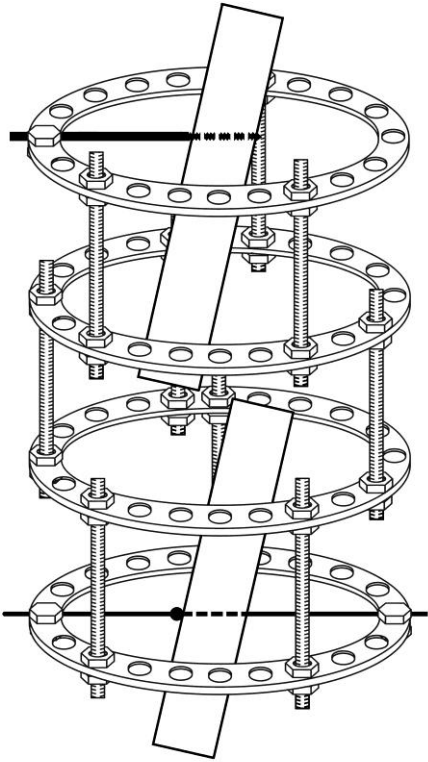
Step 7. Stabilizing bone components insertion, fixation



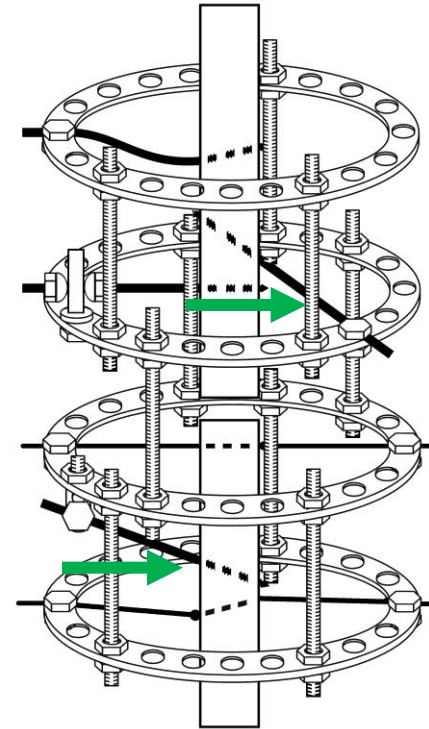
Step 7. Stabilizing bone components insertion, fixation, and diastase elimination ("compression")



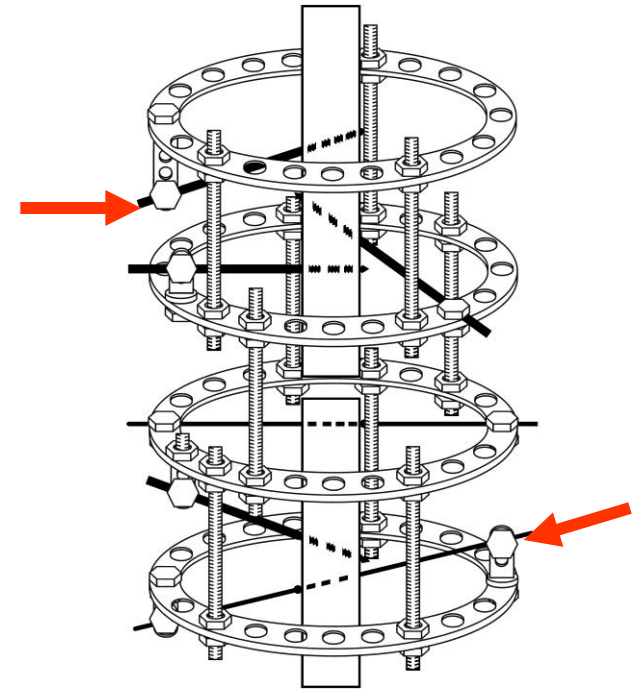
Bone fragment reduction: elimination of displacing forces



base wires and pins
deformity

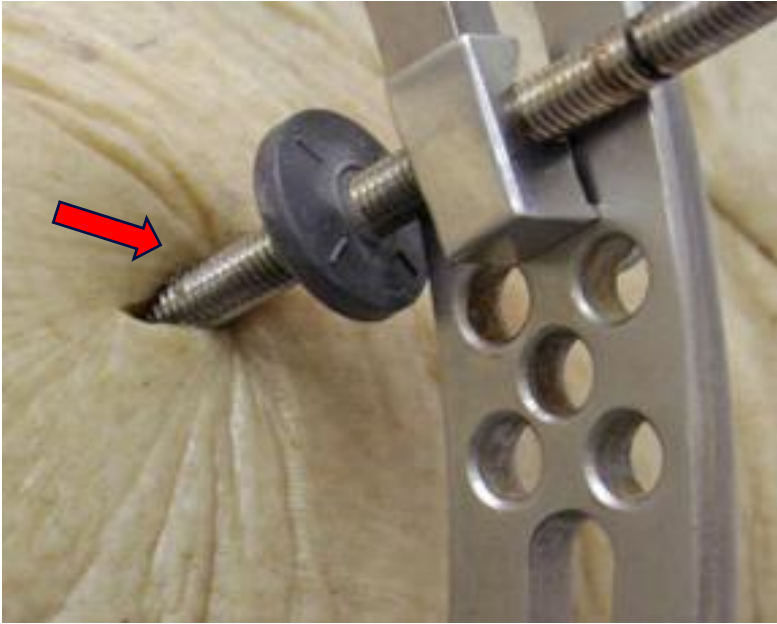


insertion of
stabilizing pins



re-fixation of base
wires and pins

Step 8. Skeletal traction dismantling, checking, cleaning and dressing



Soft tissue release

Step 8. Skeletal traction dismantling, checking, cleaning and dressing



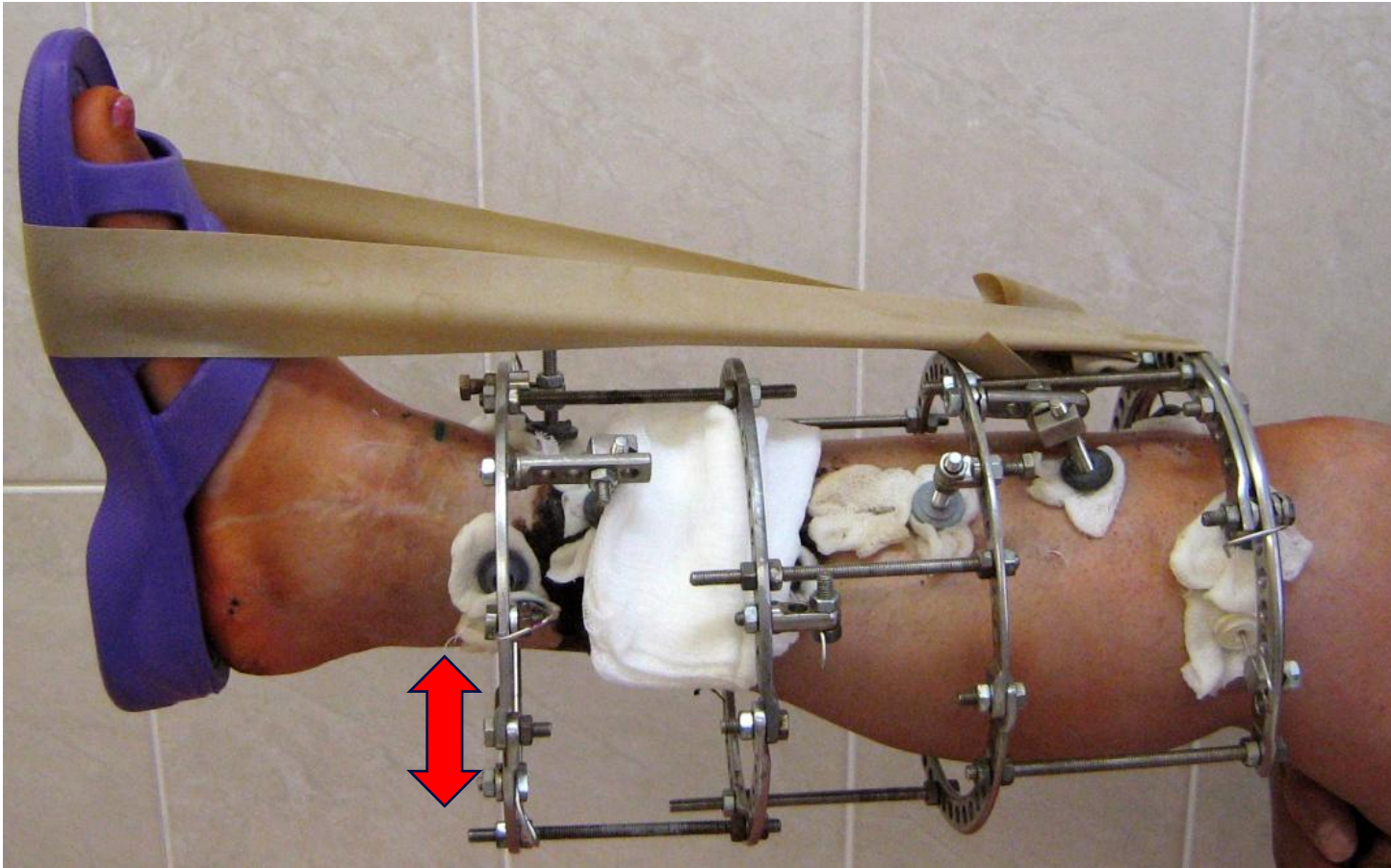
Open “western” protocol

Step 8. Skeletal traction dismantling, checking, cleaning and dressing

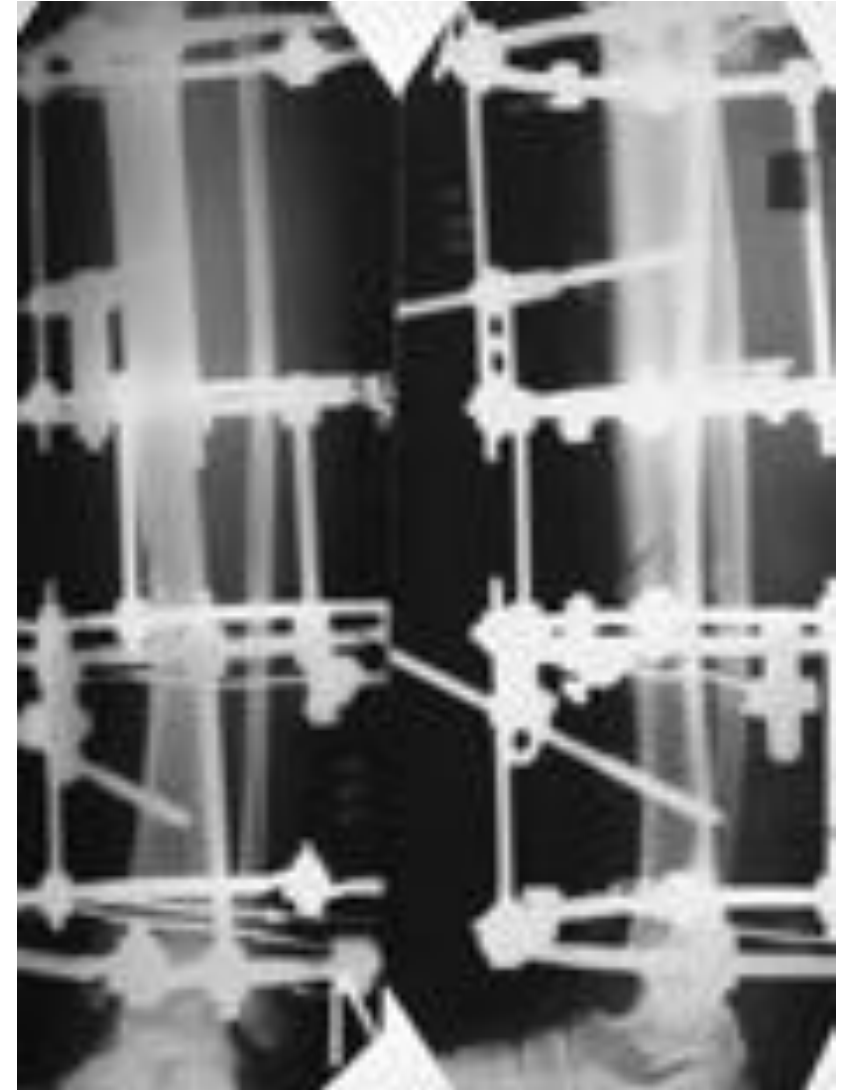


“Russian” protocol

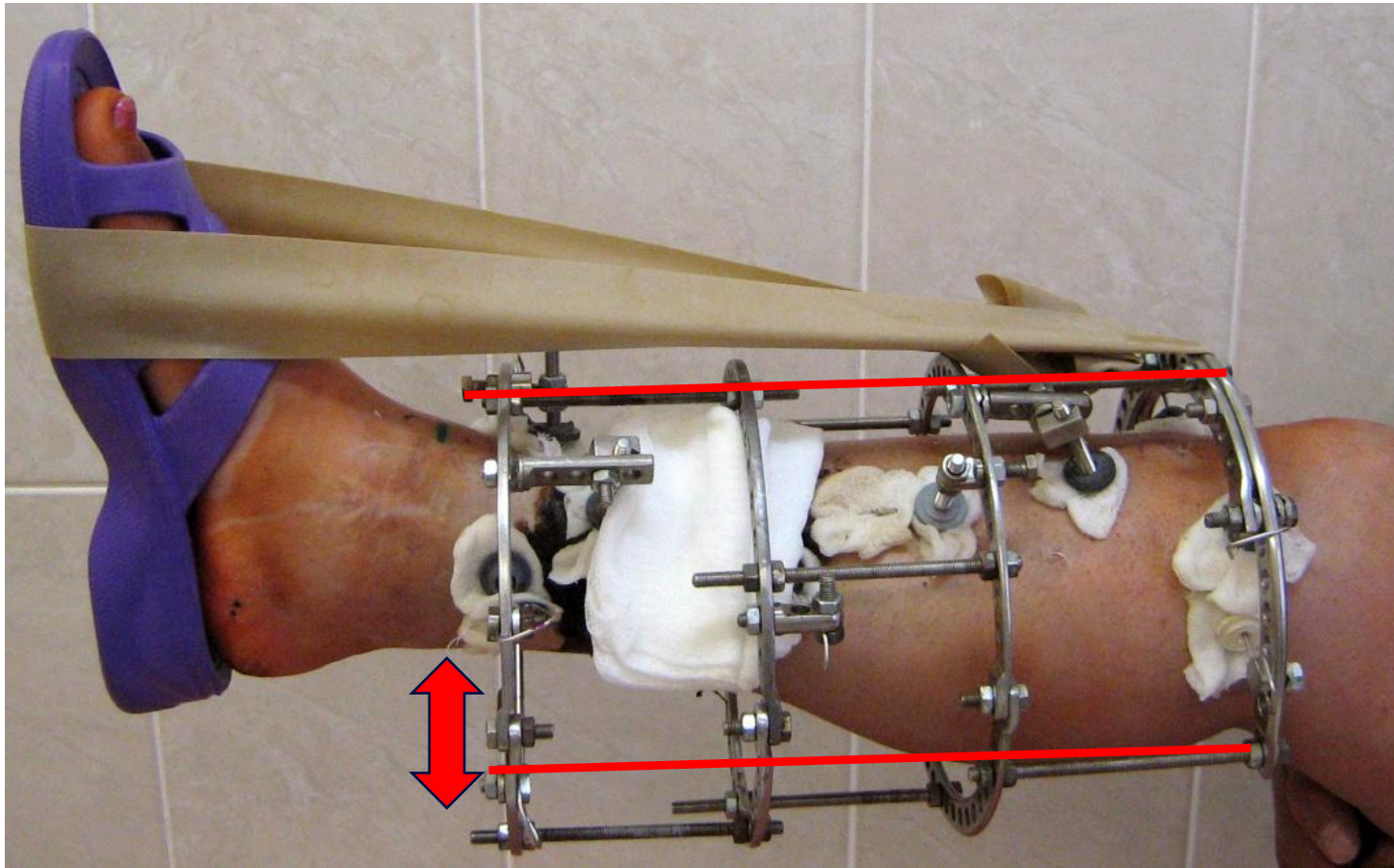
Step 8. Skeletal traction dismantling, checking, cleaning and dressing



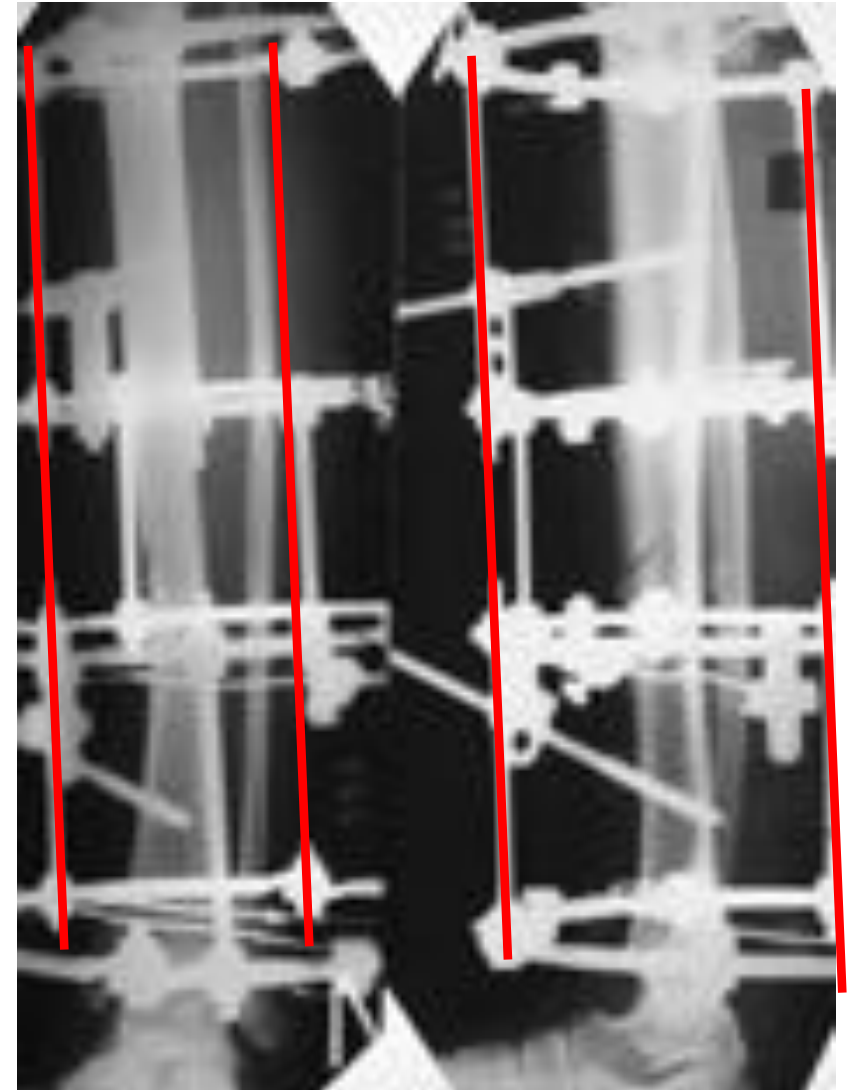
We have done it!



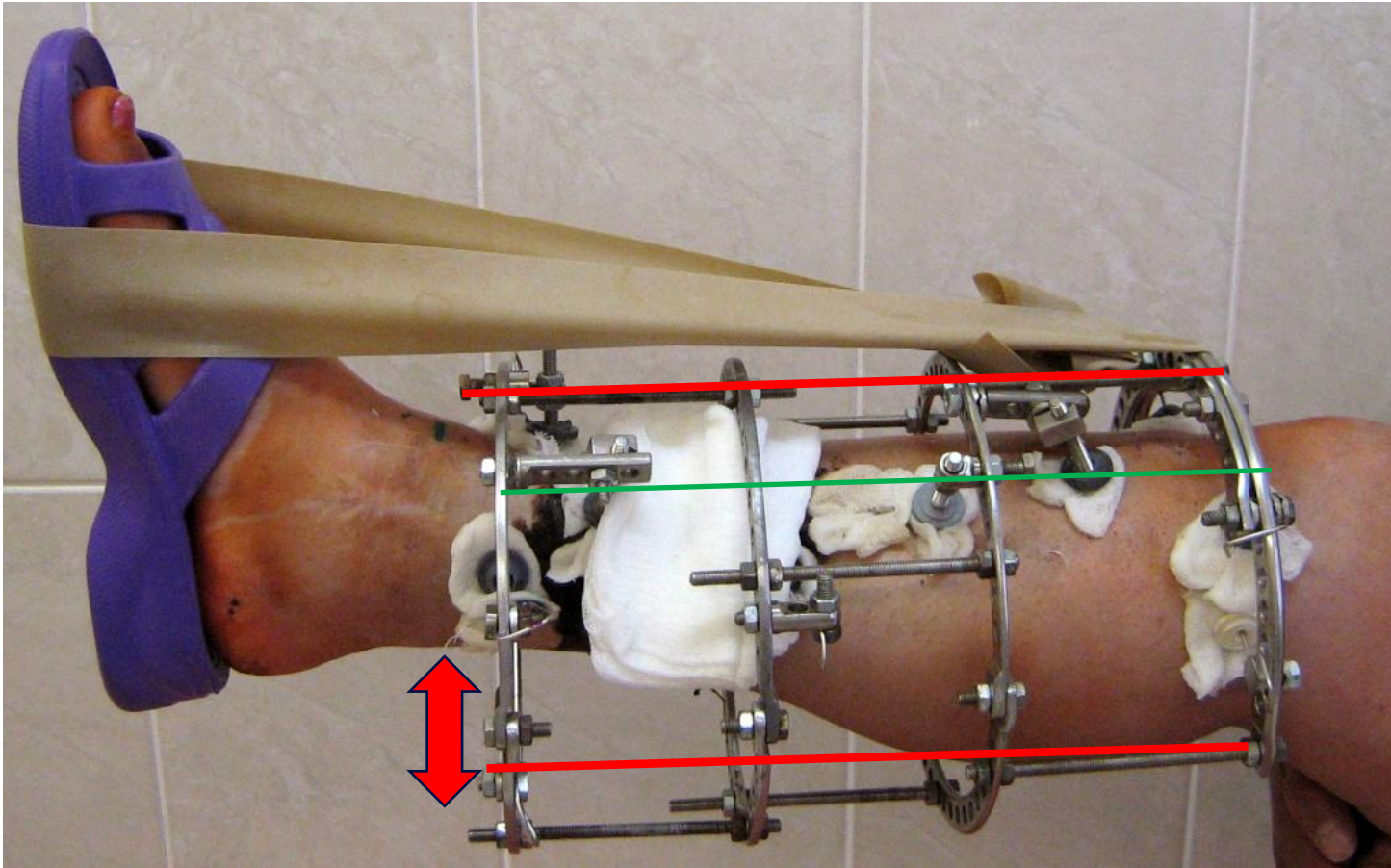
Step 8. Skeletal traction dismantling, checking, cleaning and dressing



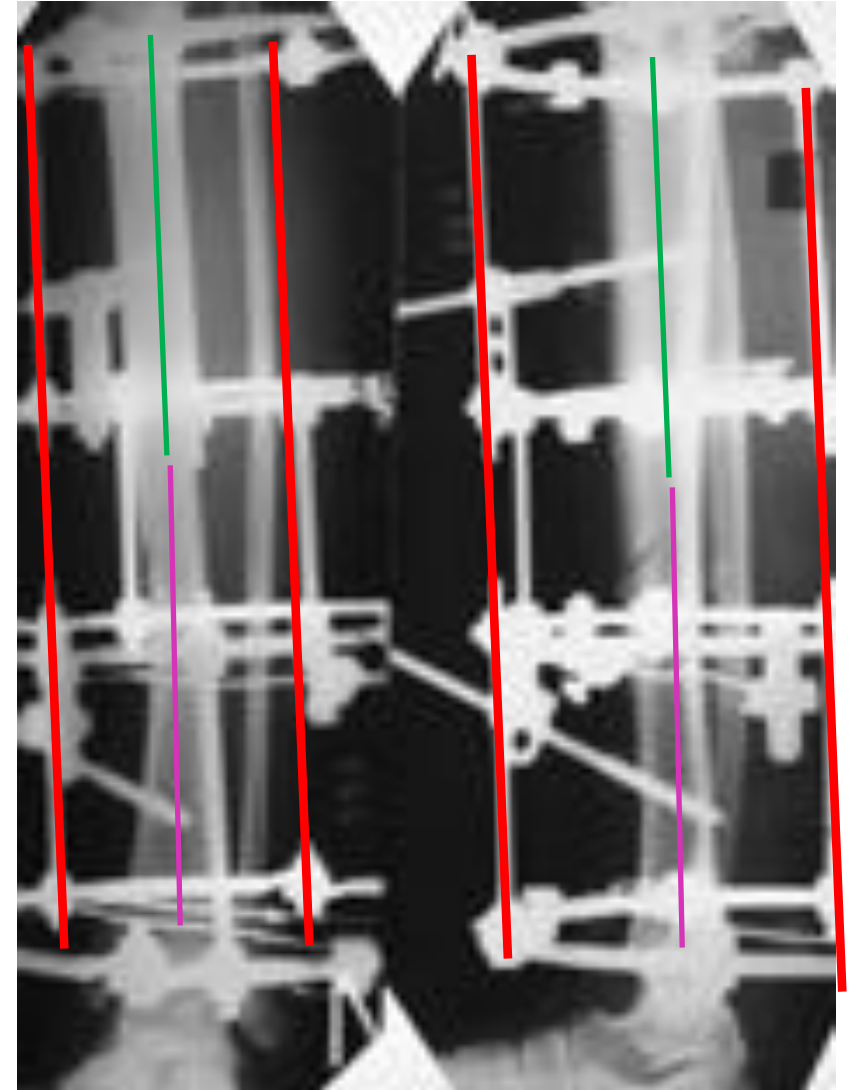
We have done it!



Step 8. Skeletal traction dismantling, checking, cleaning and dressing



We have done it!



Take-home message

