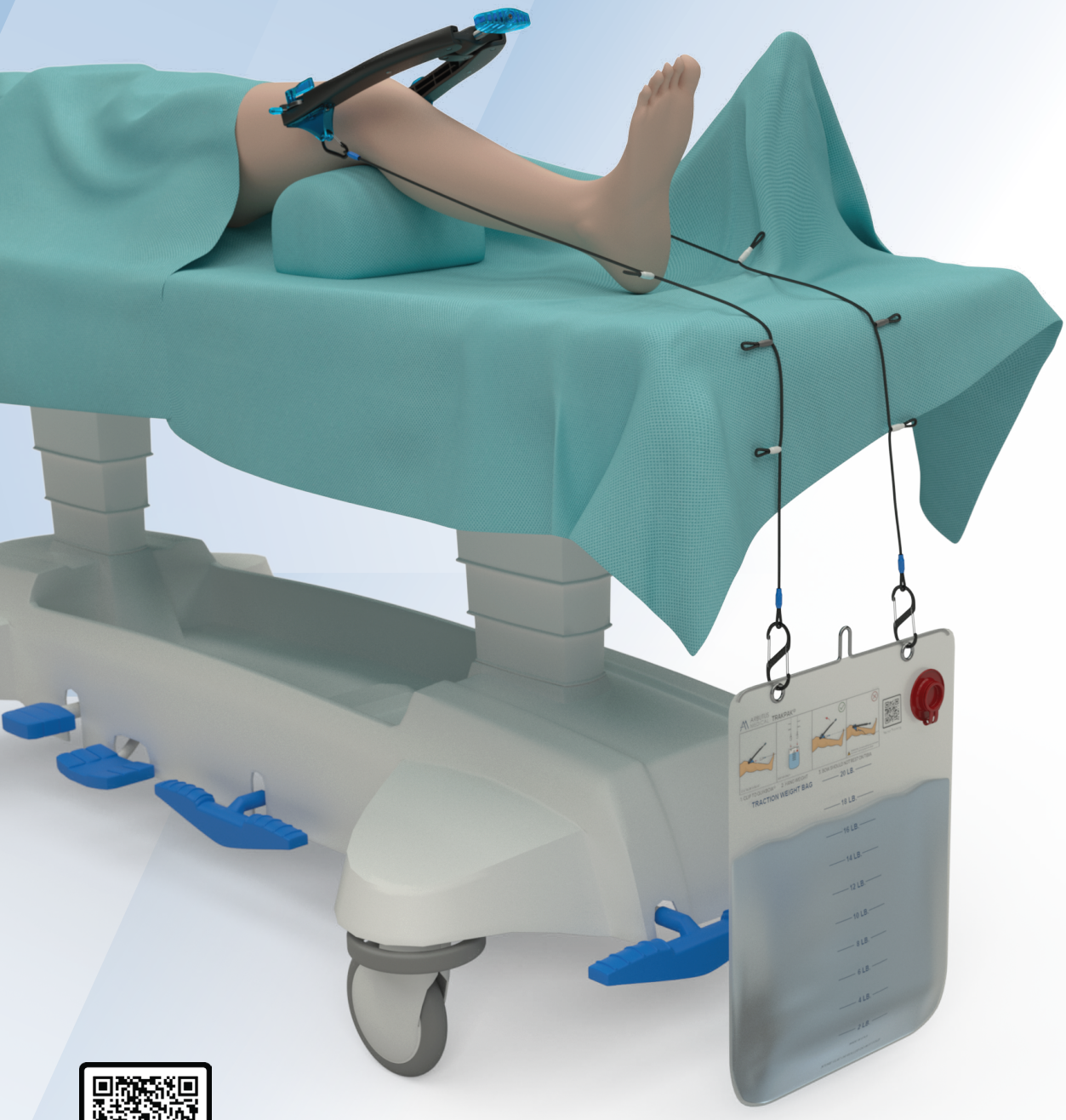
TRAKPAK®
SKELETAL TRACTION PROCEDURE KIT

ARBUTUS MEDICAL

TECHNIQUE GUIDE
Bedside Skeletal Traction



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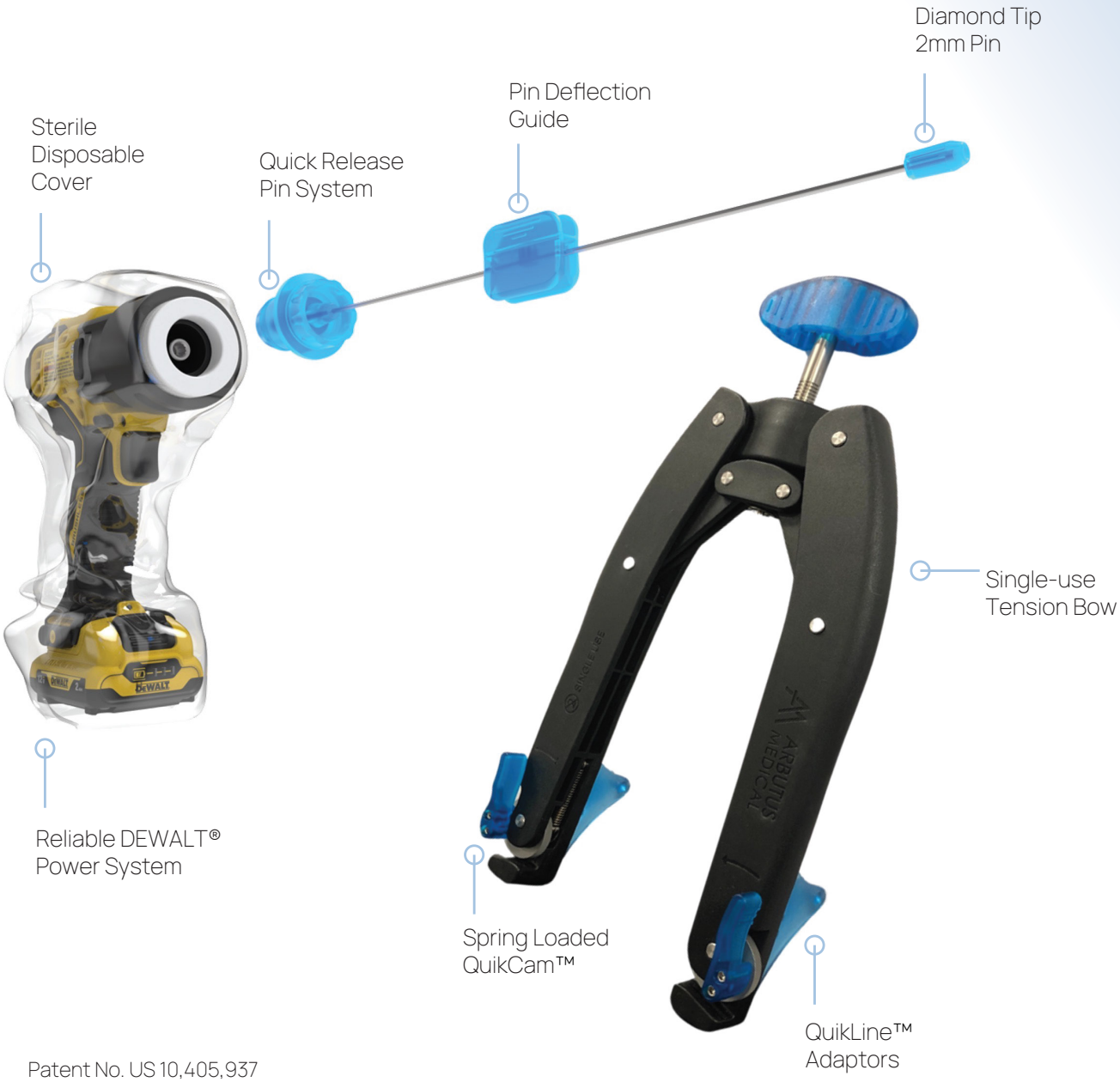
DESIGN

TRAKPAK®

TrakPak® is an all-in-one procedure kit designed to streamline bedside skeletal traction in the emergency department.



Patent No. US 10,405,937
Patents pending

PATIENT PREPARATION

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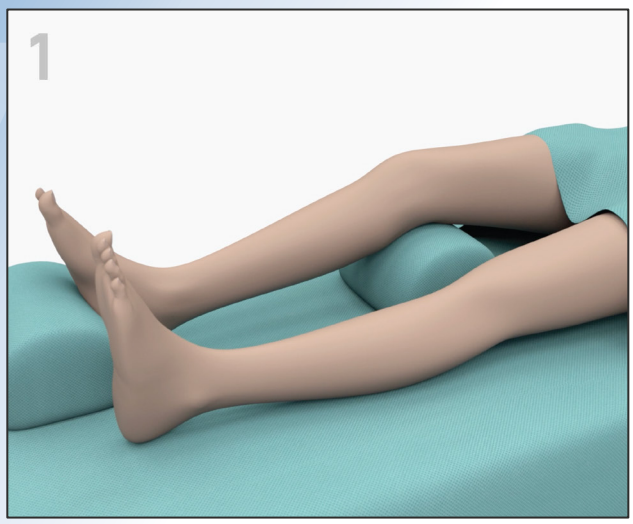
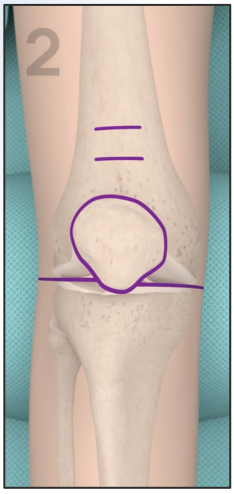
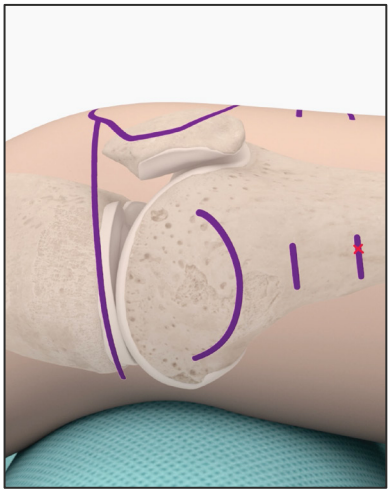
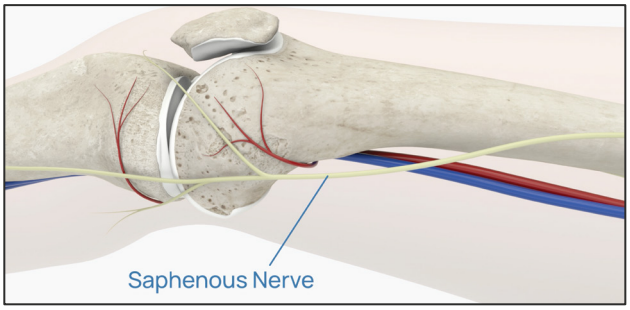
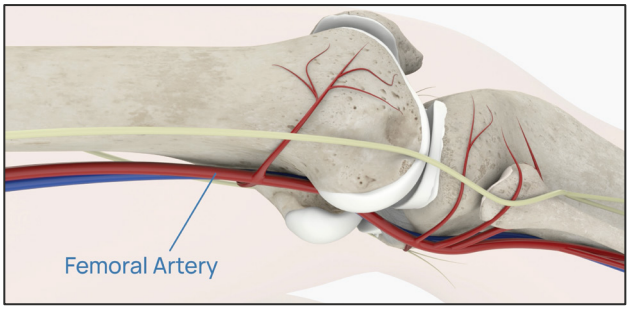










PATIENT POSITIONING

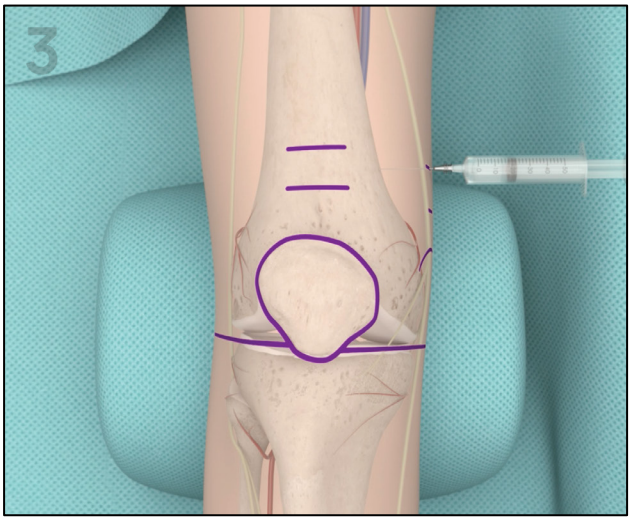
- Position the patient laying on their back with the affected leg extended
- To optimize femur position for pin insertion:
  - Use a bump to slightly flex and elevate the knee 20° to 30° to clear the contralateral leg
  - De-rotate the leg with the patella facing upwards

LANDMARKS

- Identify the following landmarks:
  - Patella
  - Joint line
  - 2cm superior to patella
  - Femoral epicondyle (medial and lateral)
  - 2cm superior/proximal to medial epicondyle

STRUCTURES TO AVOID

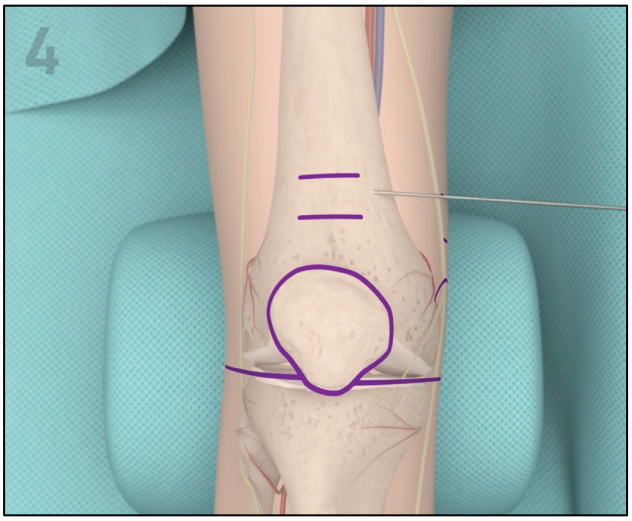
- Ensure medial pin entry and lateral exit sites will avoid key neurovascular structures:
  - Saphenous nerve
    - Posterior-medial
  - Femoral vessels
    - Posterior



LOCAL ANESTHETIC

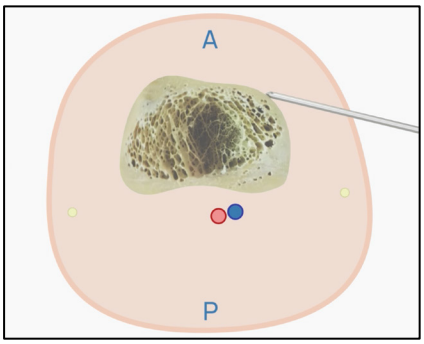
- Sterilize the leg before injecting
- Inject 20cc total of lidocaine to the pin entry and exit sites
  - 10cc medially and 10cc laterally each with a skin wheal and to the periosteum
  - While waiting for local block to be set, continue to prep the leg with drapes

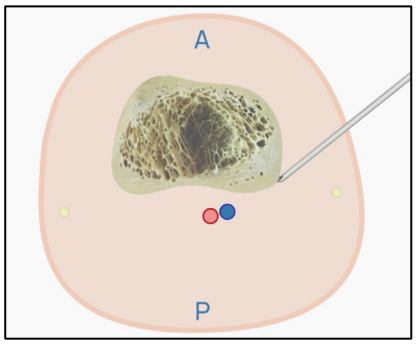
PIN INSERTION

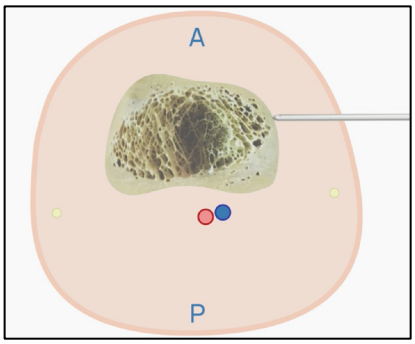


LOCATING BONE CENTER

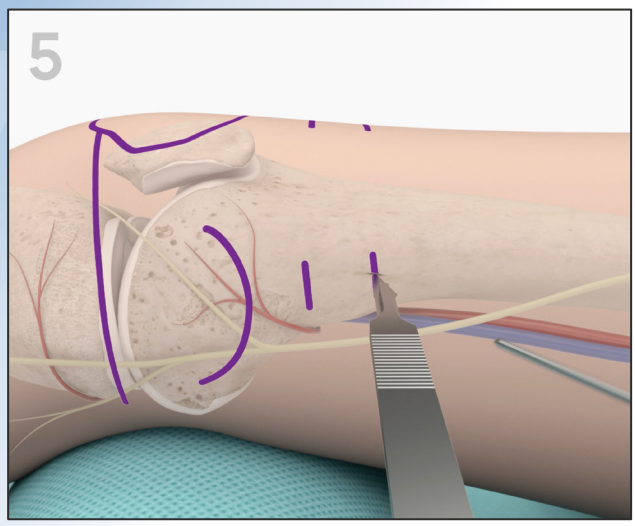
- Insert the pin at entry site and advance to bone
- Gently probe to locate anterior and posterior limits before positioning the pin centrally or in the anterior 1/3 as preferred
  - Angle or diverge, looking to see that the angle between anterior and posterior limits is equally divergent from neutral







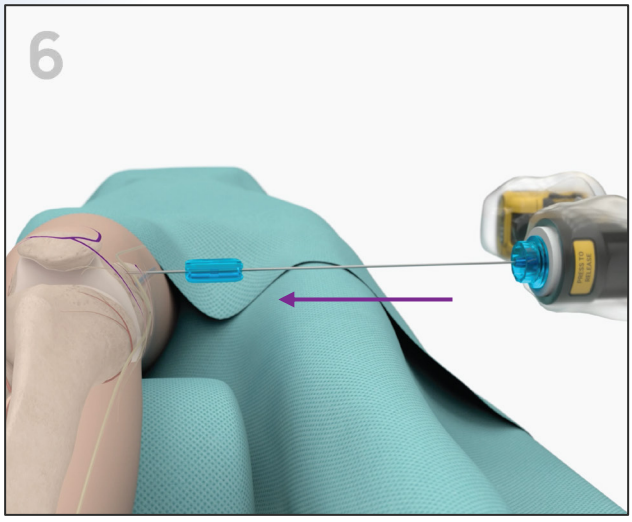
Note:
- Ensure the pin is not pushed past the posterior limit to avoid contacting key neurovascular structures



SKIN NICK

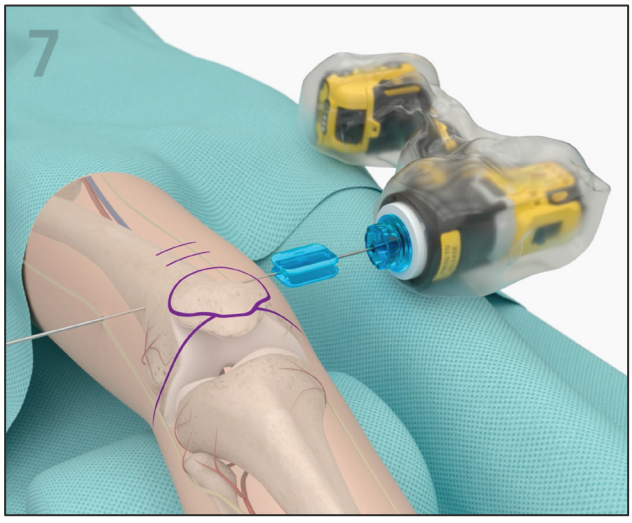
- Once center of bone is located, remove pin from leg and perform a longitudinal skin nick at the desired entry site with an 11 blade
- Reinsert the pin through the skin nick and advance to bone

Note:
- This step may also be performed before locating bone center – follow the directions of your institution



PREPARING TO DRIVE PIN

- Connect the pin to the pin driver, if not already
- Ensure the pin is parallel to the floor and joint line
- Slide the blue pin guide towards the patient's leg to control pin deflection
- Counter pressure applied to the patient's leg is useful if help is available



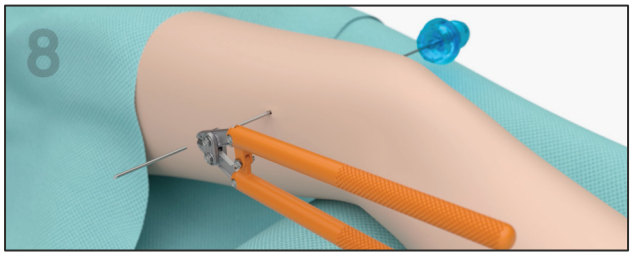
DRIVING PIN

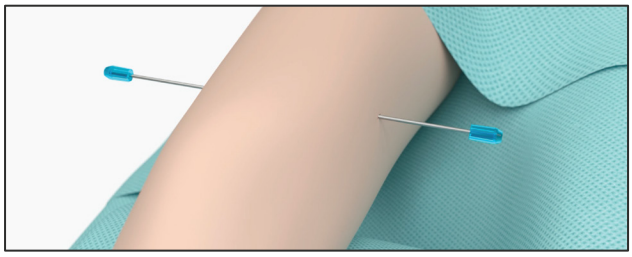
- Drive the pin through the bone
  - Progress quickly to control heat
- A tactile "give" should be felt when the pin is through each cortex
- Press the release button to disconnect the drill

Note:
- Once inserted, toggle the pin to confirm bicortical placement – if toggling causes pin movement on the other side of the leg, the pin is likely not bicortical
- Bicortical placement is critical to avoid causing iatrogenic fracture

APPLYING TRACTION

TRAKPAK®

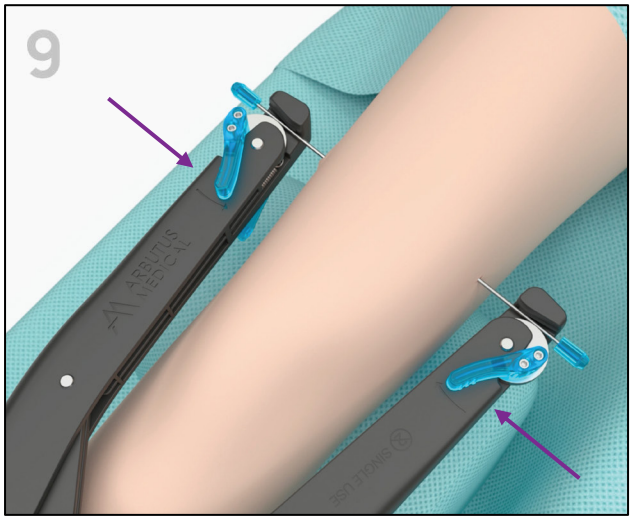




TRIMMING PIN

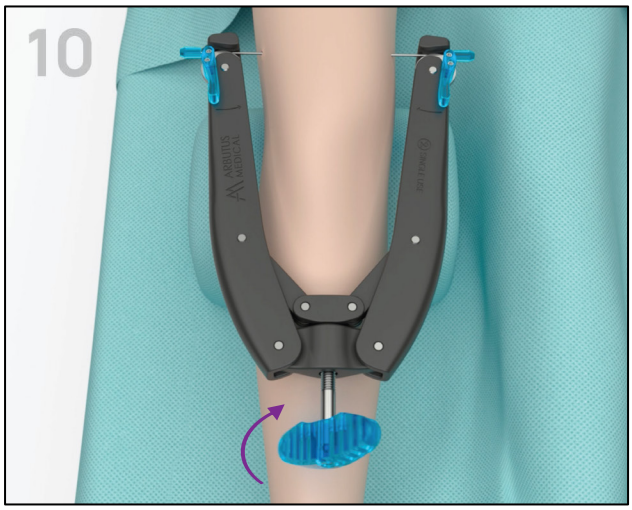
- Before trimming the pin, perform lateral imaging, if desired, to confirm pin placement
- Use the wire cutters to trim the ends of the pin, ensuring the pin does not contact the opposite leg
- Place a pin cap on each end of the trimmed pin

Note:
- You can slide the blue drill adaptor towards the patient's leg before trimming to maximize pin length



SECURE QUIKBOW®

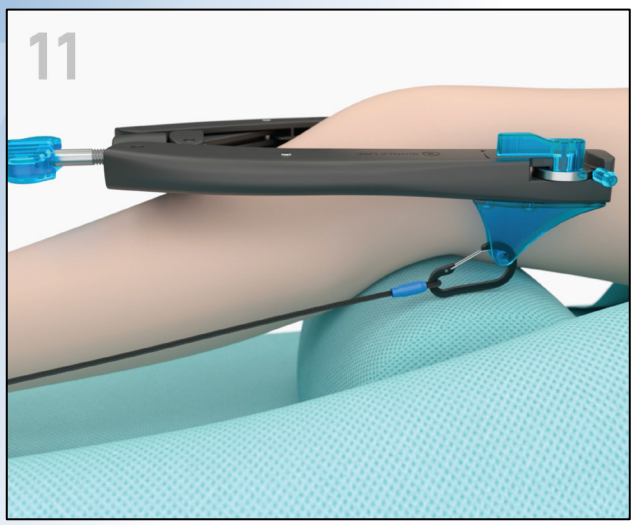
- Depress blue QuikCam™ locking levers towards the center of QuikBow®
- Place QuikBow® under the wire, ensuring the wire sits in the groove at the end of the bow
- Release the QuikCam™ levers to secure QuikBow® to the wire



APPLY TENSION TO WIRE

- Turn the blue handle clockwise to apply tension to the wire
- Continue to turn clockwise until QuikBow® is as tight as possible to ensure secure attachment to the wire

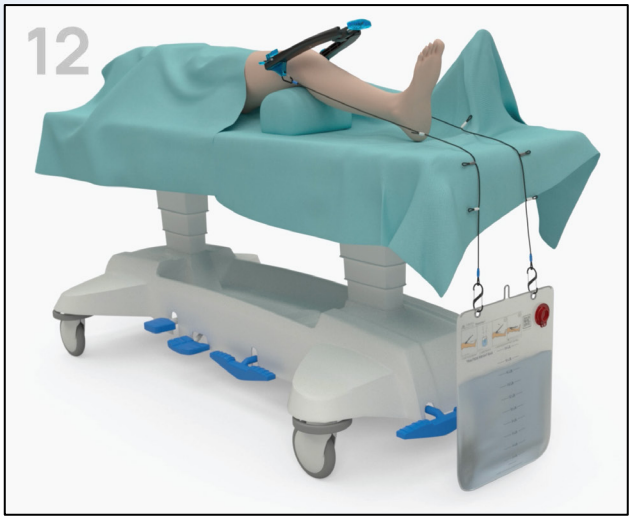
Note:
- You may choose to secure QuikBow® before trimming the pin to ensure the pin is not trimmed too short



CONNECT QUIKLINE™ ROPES

- Connect the blue marked carabiner on each QuikLine™ rope to the blue connector on the underside of each arm of QuikBow®
- Hang the ropes off the end of the bed

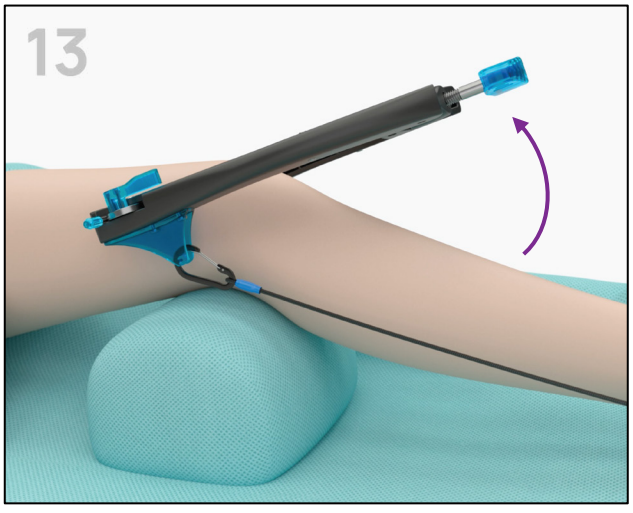
Note:
- QuikLine™ can be used with any patient bed, with or without a footboard



APPLY TRACTION

- Fill the water bag to the desired weight, following the scale, in lbs, on the front of the bag
- Connect the end of each QuikLine™ rope to the gromets on the top of the water bag
- Gradually release the water bag to apply traction to the patient

Note:
- Any water can be used. Ensure the red fill cap is securely closed before proceeding



CONFIRM TRACTION APPLIED

- Traction is being applied when QuikBow® lifts off the tibia
- Ensure QuikBow® is not resting on the tibia to prevent pressure ulcers
- Remove knee bump, if desired, once traction is applied
- Dress pin sites to protect tissue by wrapping xeroform around pin entry and exit sites, and secure with gauze

ALTERNATIVE APPROACH: PROXIMAL TIBIA PIN PLACEMENT

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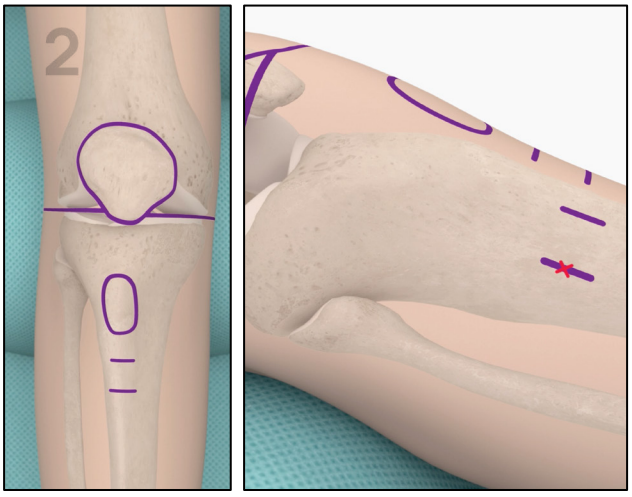
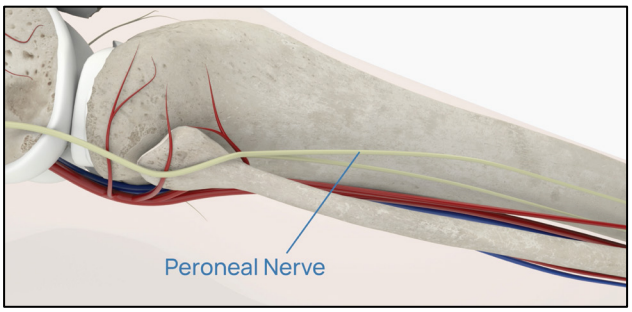
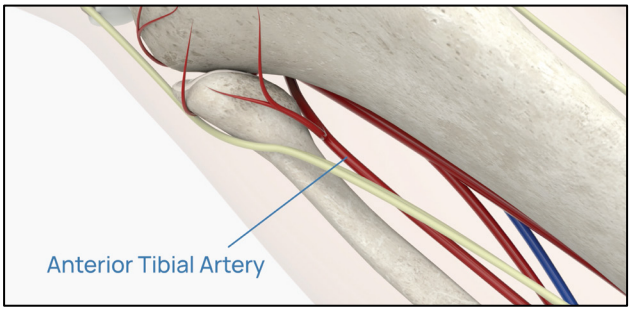
Traction pins may also be placed in the proximal tibia due to patient condition, type of injury, or institutional preference. Many of the steps remain the same as distal femur pin placement. The following steps are specific to proximal tibia pin placement.







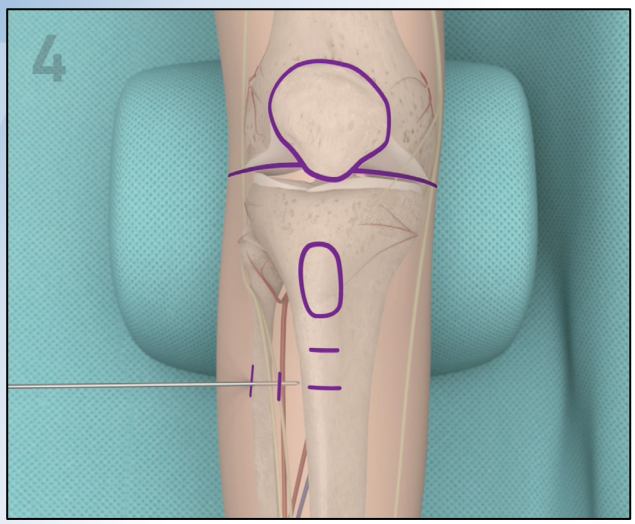
LANDMARKS

- Identify the following landmarks:
  - Patella
  - Joint line
  - Tibial tubercle
  - 2cm distal to tibial tubercle
  - 2cm posterior to previous mark

STRUCTURES TO AVOID

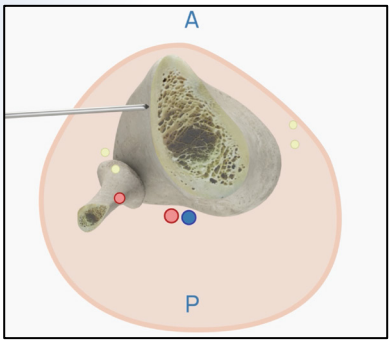
- Ensure lateral pin entry and medial exit sites will avoid key neurovascular structures:
  - Peroneal nerve
    - Posterior-lateral
  - Anterior tibial artery
    - Posterior

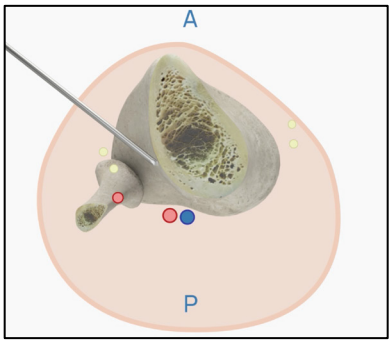
Note:
- Patient positioning, injecting lidocaine, and skin nicking follow the same steps as distal femoral skeletal traction

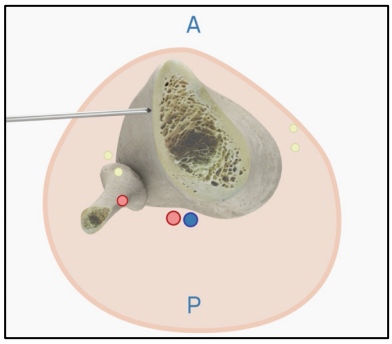


LOCATING BONE CENTER

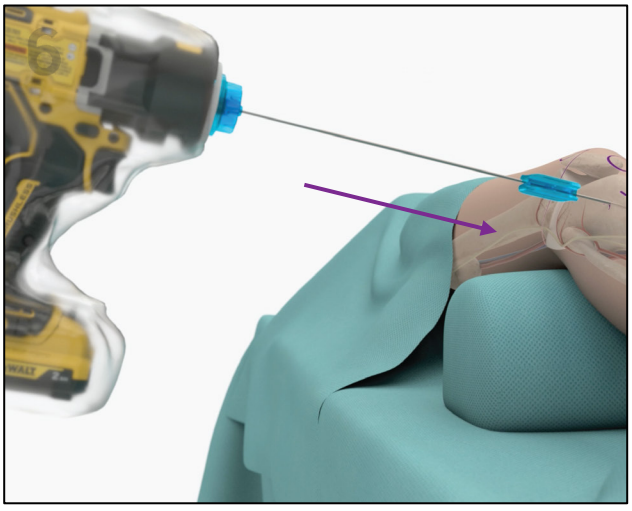
- Insert the pin at entry site and advance to bone
- Gently probe to locate anterior and posterior limits before positioning the pin centrally or in the anterior 1/3 as preferred
  - Angle or diverge, looking to see that the angle between anterior and posterior limits is equally divergent from neutral





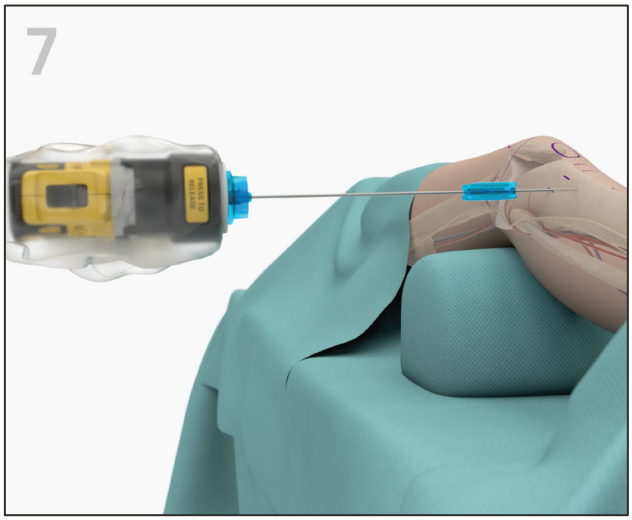


Note:
- Be mindful of the slope of the tibia as to not skive off the bone
- Ensure the pin is not pushed past the posterior limit to avoid contacting key neurovascular structures



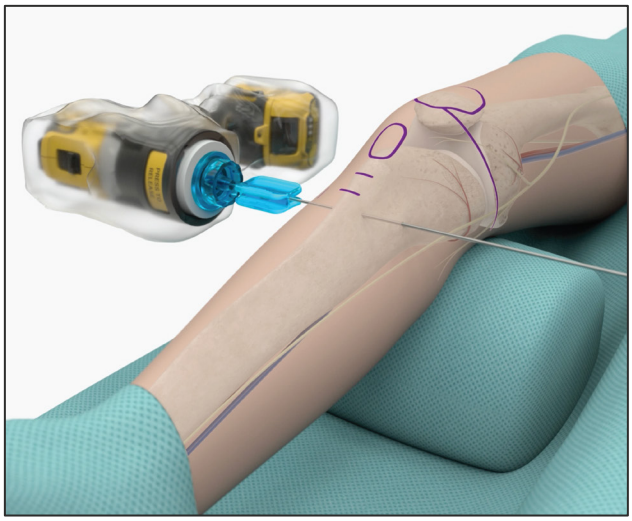
PREPARING TO DRIVE PIN

- Connect the pin to the pin driver, if not already
- Due to the slope of the tibia, begin with the pin perpendicular to the face of the bone, pointing slightly posteriorly
- Slide the blue pin guide towards the patient's leg to control pin defection
- Create a divot on the bone to prevent skiving off the tibia



DRIVING PIN

- Correct the pin angle to be parallel to the floor before continuing to drill
- Ensure the pin remains parallel to the floor and joint line
- Hold the patient's leg steady to ensure the pin is inserted correctly



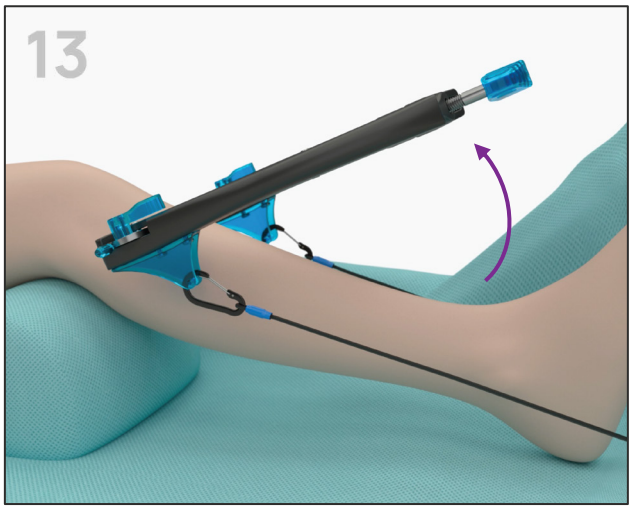
- Drive the pin through the bone
  - Progress quickly to control heat
- A tactile "give" should be felt when the pin is through each cortex
- Press the release button to disconnect the drill

Note:

- Once inserted, toggle the pin to confirm bicortical placement – if toggling causes pin movement on the other side of the leg, the pin is likely not bicortical
  - Bicortical placement is critical to avoid causing iatrogenic fracture

Note:

- Trimming the pin, securing QuikBow®, and hanging the water bag follow the same steps as distal femoral skeletal traction



CONFIRM TRACTION APPLIED

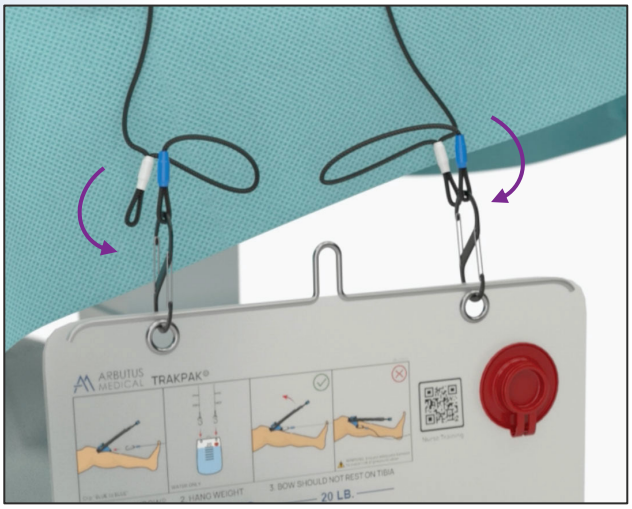
- Traction is being applied when QuikBow® lifts off the tibia
- Ensure QuikBow® is not resting on the tibia to prevent pressure ulcers
- Remove knee bump, if desired, once traction is applied

EQUIPMENT TEARDOWN

TRAKPAK®

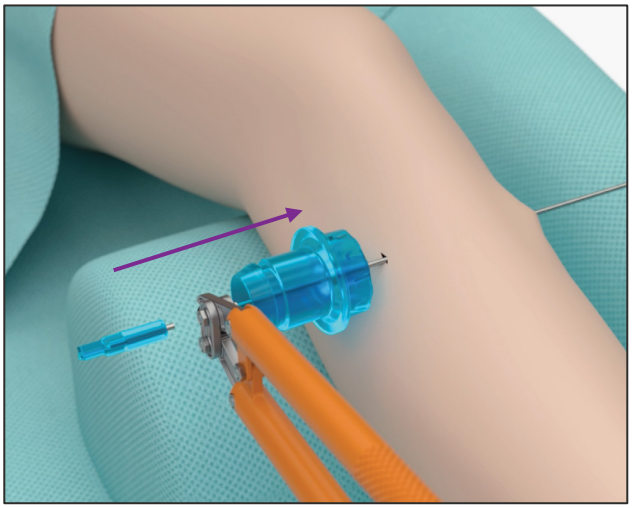
- All components of TrakPak® are single-patient use and can be disposed of after the procedure
- QuikBow® is single-patient use and can be disposed of, or recycled at participating insitututions, when the patient is taken out of traction in the operating room
- The DEWALT® Surgical Pin Driver is reusable and can be wiped down with a disinfectant wipe, returned to the blue power bag, and bateryplaced on the charger

TIPS



ADJUST WATER BAG HEIGHT

- If needed, the height of the water bag may be adjusted by clipping the QuikLine™ carabiner to a set of loops higher up on the rope
- The water bag should never be resting on the ground



MAXIMIZING PIN LENGTH

- If needed, slide the blue drill adapter towards the patient's leg before trimming to maximize the length of the pin

ROUNDING CHECKLIST

TRAKPAK®

CHECK	ACTION
QuikBow® is elevated on of tibia	Check weight and lines for obstructions, check patient positioning, or raise height of water bag
QuikLine™ ropes are not contacting the patient's lower leg or foot	Resecure QuikBow® with a wider span, reposition the lines, or pad the patient
Water bag is not resting on the floor	Raise height of water bag
Patient's foot is not resting on footboard	Reposition the patient
Pin is not sagging and QuikBow® is tight	Add more tension to wire by turning QuikBow® handle as much as possible
Pin is not contacting opposite leg and pin covers remain on ends of pin	Trim the pin closer to QuikBow® and reapply pin cover
Leg is not externally rotated	Reposition or bump leg to maintain neutral position

PATIENT POSTIONING & TRANSFERS

If required, manual traction can be applied for positioning and/or transferring patients. Manual traction requires pulling in the direction of the weight to mimic the ordered weight. One staff member should either:

- Lift and pull from the water bag, making sure the bow remains elevated off the leg, or
- Pull directly from the handle of QuikBow® while holding up the water bag

If manual traction is not required, the water bag can be removed for patient positioning and transfer

LEARN MORE

TRAKPAK®

View Additional Resources

INSTRUCTIONS FOR USE

EDUCATION VIDEOS

Questions? ✉ training@arbutusmedical.ca

For product information, including indications, contraindications, warnings, and precautions, please refer to the Instructions for Use found at www.arbutusmedical.com.

Arbutus Medical does not practice medicine. This technique was developed in conjunction with health care professionals. This document is intended for surgeons. Each surgeon should exercise their own independent judgment in the diagnosis and treatment of an individual patient, and this information does not intend to replace the comprehensive training surgeons have received. As with all surgical procedures, the technique used in each case will depend on the surgeon's medical judgment as the best treatment for each patient. Not all patients are candidates for this product and/or procedure.

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