

Skills Lab Faculty Guide

Techniques of reduction (2)

At this station, you will introduce the participants to the principle of distraction as a reduction force. It will be important to describe to the learners the dislocating forces involved that deform a bone or joint following the fracturing injury. Consequently, reversing the deforming forces involves distracting the main fracture fragments to their original positions. Soft tissue attachments like muscles, periosteum, ligaments and capsular attachments allow the fragments to

be realigned with regard to length, alignment and rotation by distraction. This phenomenon is called ligamentotaxis.

The station includes examples of using distraction tools for reduction, such as the femoral distractor or external fixator. The participants will have the opportunity to discover the femoral distractor and the external fixator as reduction tools and to try out their functions.



Learning objectives

After completing this station, participants will be able to:

- Demonstrate use of a femoral distractor as a reduction tool
- List instances in which a distractor is indicated
- Explain use of an external fixator for reduction

Take-home message

- Distraction uses soft tissue attachments to fragments for indirect reduction
- The femoral distractor is a powerful and versatile distraction/reduction tool
- Tools of reduction serve to preserve vascularity

Station sequences (your tasks)

When you arrive at the station for the Skills Lab module:

- Familiarize yourself with the posters which include information about the station's learning outcomes and tasks
- Check the set-up before participants arrive at this station; assemble the large and medium distractors, if not already pre-assembled

During the group activity:

Let the participants handle the femoral distractors on the set and apply it to the models. The smaller femoral distractor can be applied as reduction tool to the distal tibia, the external fixator as reduction tool to the calcaneum. Schanz screws are already fixed to the modules for distractor application.

Discussion points

- Discuss the role of soft tissue for indirect reduction by ligamentotaxis.
- Let participants explain the use of the femoral distractor by describing its construction
- Summarize take-home messages

While participants are changing tables:

- Remove the distractors from the Schanz screws
- Put the foam models and instruments back in order
- Check that none of the instruments are missing

Before you leave the station after the Skills Lab module:

- Check the station and make sure all instruments & models are still there

Frequently asked questions (FAQs)

What is meant by distraction?

Distraction is the pulling force by which indirect reduction techniques achieve an approximate re-establishment of length and alignment of a fractured long bone and approximate shape of a joint.

What is involved when applying distraction forces for reduction?

A distraction force puts soft tissue under tension as would a traction table for lower extremity use. The phenomenon is called "ligamentotaxis" and involves skin, muscles, periosteum, ligaments, tendons and capsular attachments in touch with fracture fragments. When applying distraction, the soft tissue attachments tend to edge fragments into their original spatial relationship to each other.