

Scanning for AFOs

Patient Positioning & Tips





THE 3 GOLDEN RULES OF SCANNING FOR AFOS

The 3 Golden Rules of Scanning for AFOs



1. Nothing can touch the patient below the knee
2. Patient's ankle must be at 90 degrees
3. Scans must be circumferential and up the leg as high as the brace you are ordering

The 3 golden rules are required no matter what scanning method or patient position you use.

Include photos of foot/feet



1. It is highly recommended that you include photos of the patient's foot along with your scans
 - A. Using a washable marker, delineate any boney prominent areas (Malleoli, base of the 5th metatarsal, navicular, etc.)
 - B. Also call out any trouble areas that we should pay attention to such as tender areas, scar tissue, etc.





4 RECOMMENDED POSITIONS FOR SCANNING PATIENTS

Seated using TechMed3D Light (Most recommended)



Advantages of method

- Easy for patient
- Controlled positioning of foot
- A chair is the only extra piece of equipment needed

Disadvantages of method

- Difficulty scanning posterior area
 - May need to elevate both chair and device for more clearance from the ground.
- Cost of TechMe3D scanning device

TechMed3D

M+Aid Light – Structure Sensor

To purchase, go to:

<https://techmed3d.store/en/product/m-aid-light-structure-sensor/>

Scanning Tip

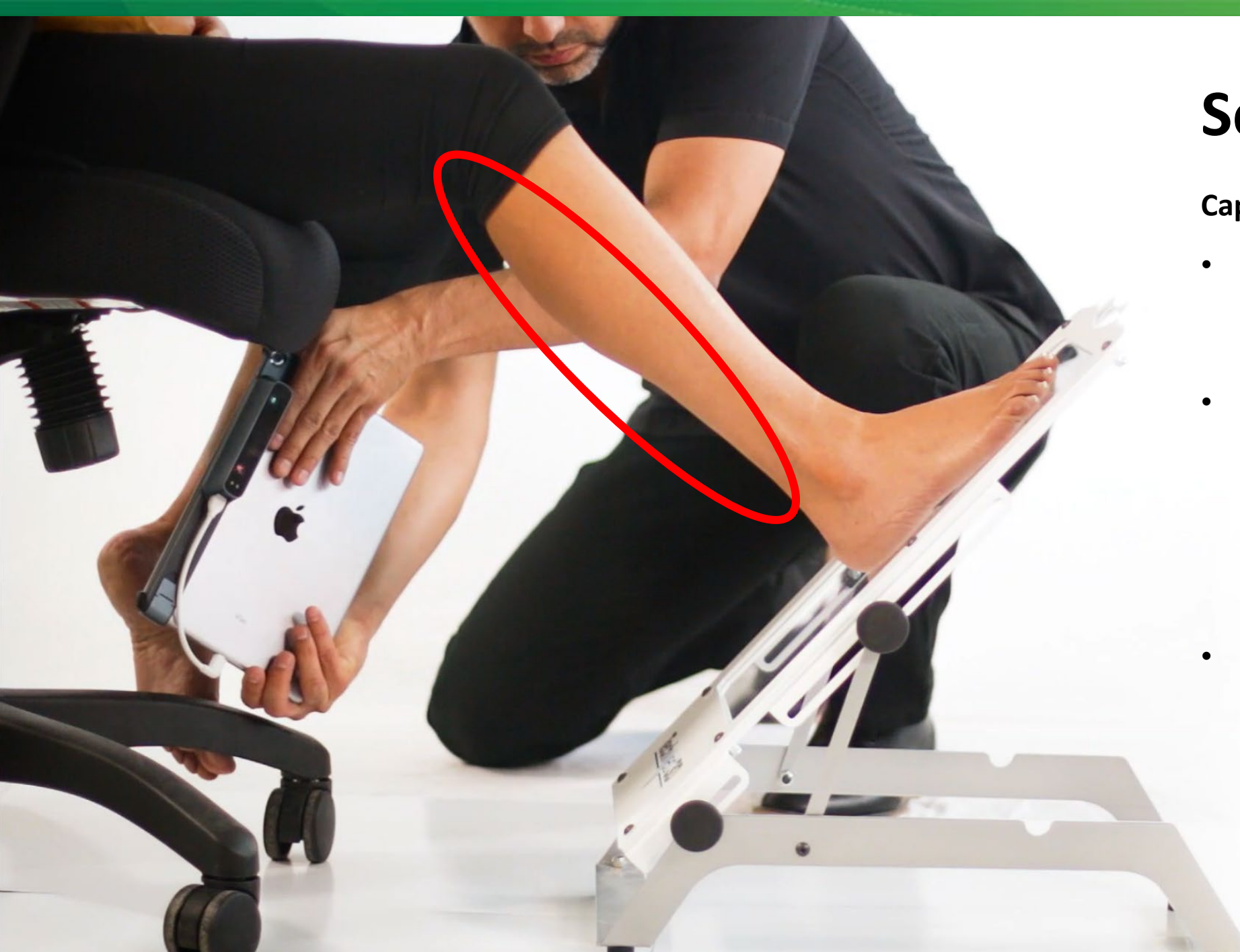
Position patient's foot as high up on the clear plate as possible without having toes touch the metal frame



Scanning Tip

Capture posterior of limb first

- We highly recommend that you start with **capturing the posterior aspect and heel first.**
- This is usually the most difficult area to capture and one of the more vital parts for the lab and because most people end up scanning it last, it is usually somewhat distorted.
- You will find capturing this area first will allow a nice and smooth image for the lab to work with.



Scanning Tip

Capture posterior of limb first

- When capturing the posterior aspect of the limb, position yourself on the **lateral side** of the patient so that you do not have the patient's other leg between you and the limb you are scanning.
- When capturing the posterior This will allow easier access to the full range of the patient's limb in order to capture the whole area.



Standing Position



Advantages of method

- Easy to maneuver around all angles of subject

Disadvantages of method

- Requires either an adjustable chair or adjustable therapy table and stool
- May be difficult for patient to keep their balance

Ensure that nothing is touching the patient below the knee.



Prone Position



Advantages of method

- Easy to maneuver around all angles of subject

Disadvantages of method

- Requires therapy table or medical chair that can lay flat
- May be difficult for patient to keep foot still and at 90°
- May be difficult for patient to lay prone

Supine Position

Prop should not deform calf muscle



Advantages of method

- Easy for patient to keep still and hold foot in position

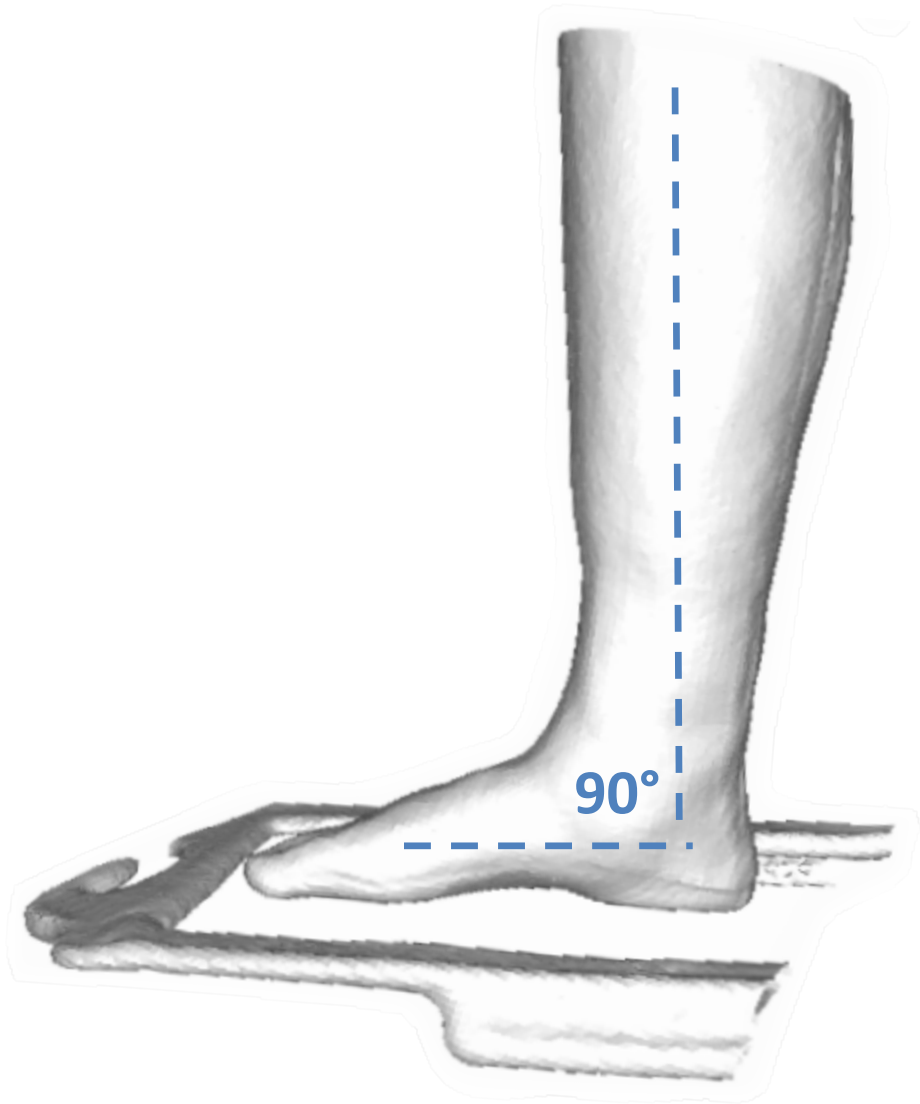
Disadvantages of method

- Requires therapy table
- Prop may distort calf muscle resulting in insufficient scan

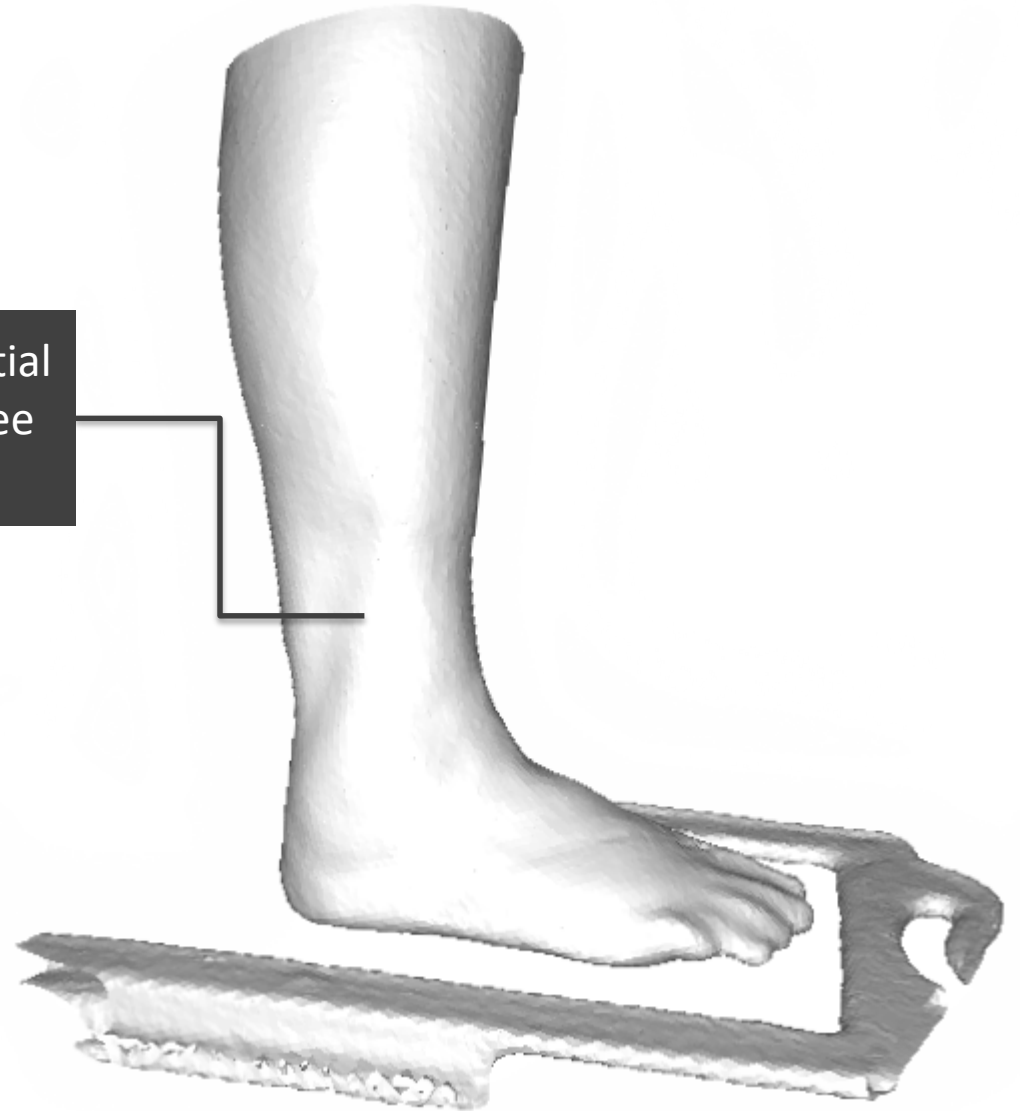


EXAMPLES OF SCANS

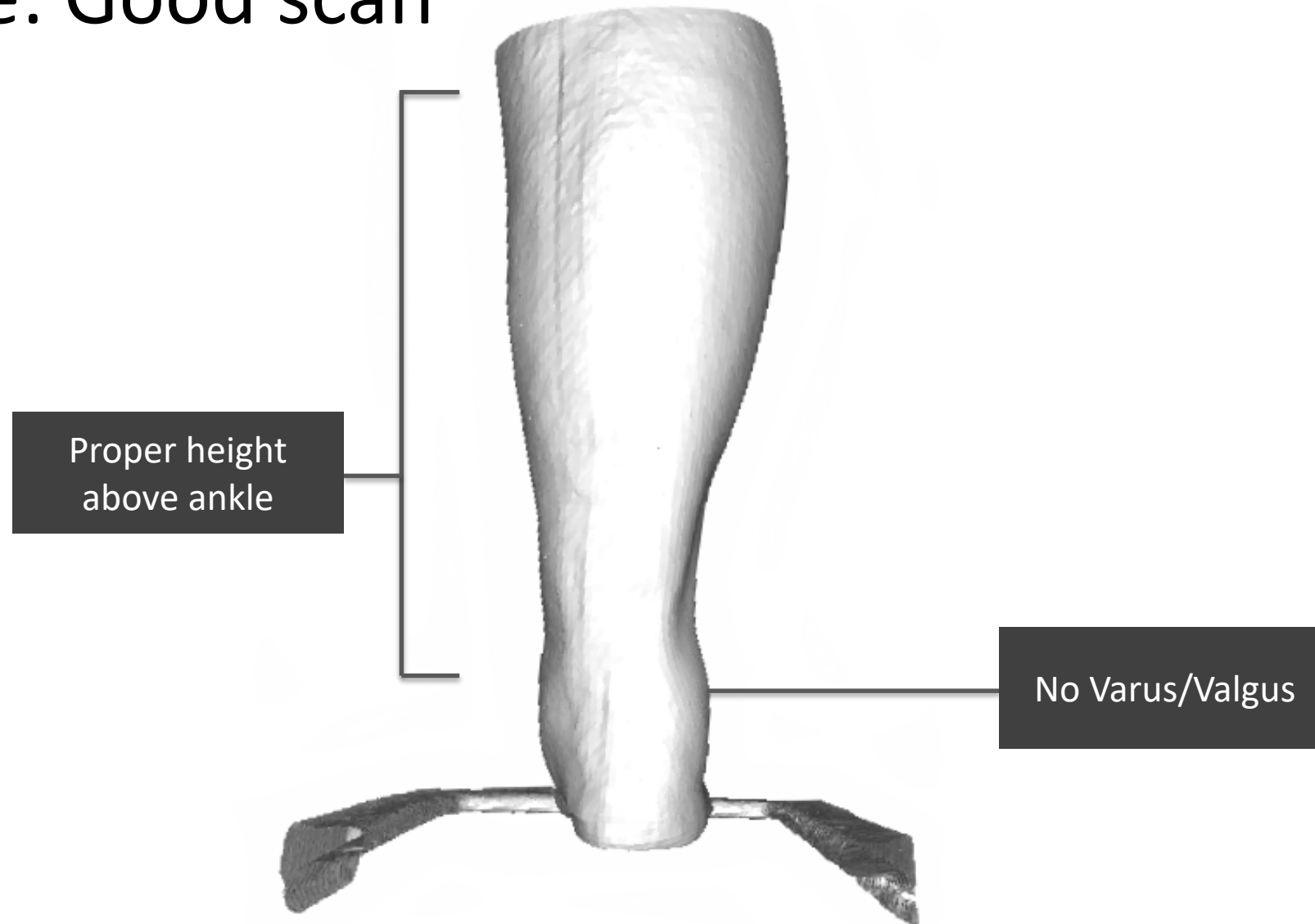
Example: Good scan



Circumferential
coverage free
of holes

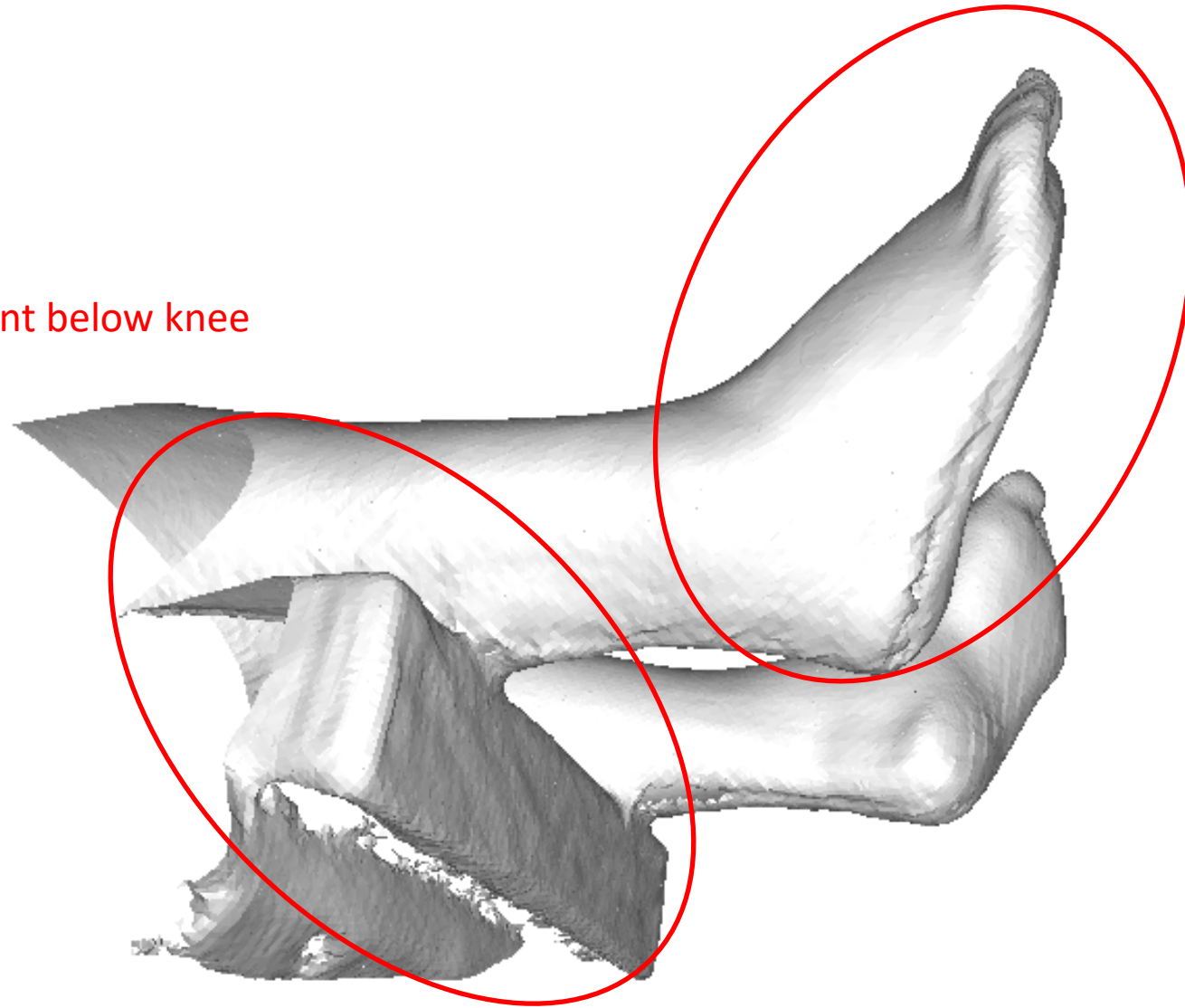


Example: Good scan



Example: Insufficient scan

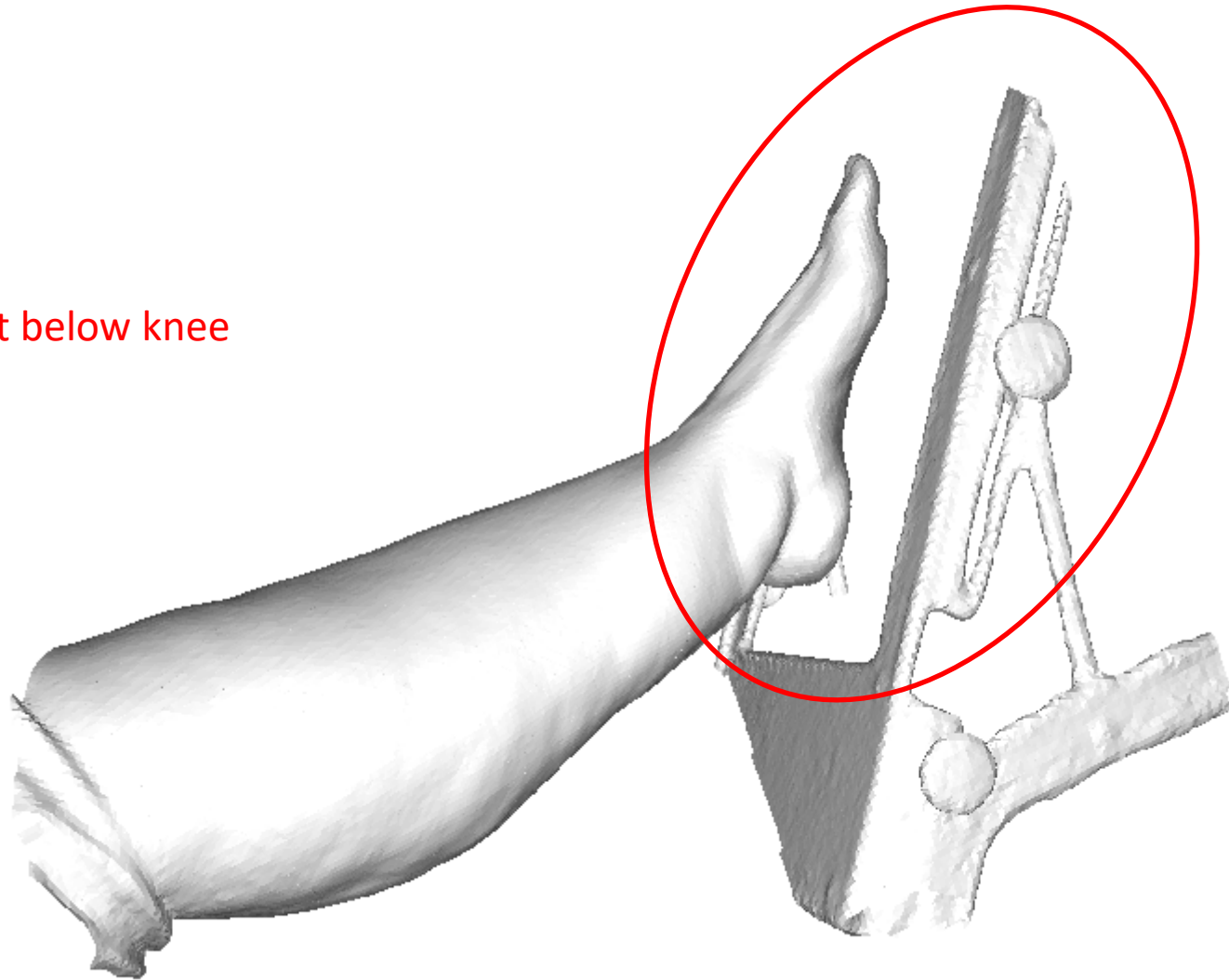
Objects touching patient below knee



Plantar-flexion which will
Require correction

Example: Insufficient scan

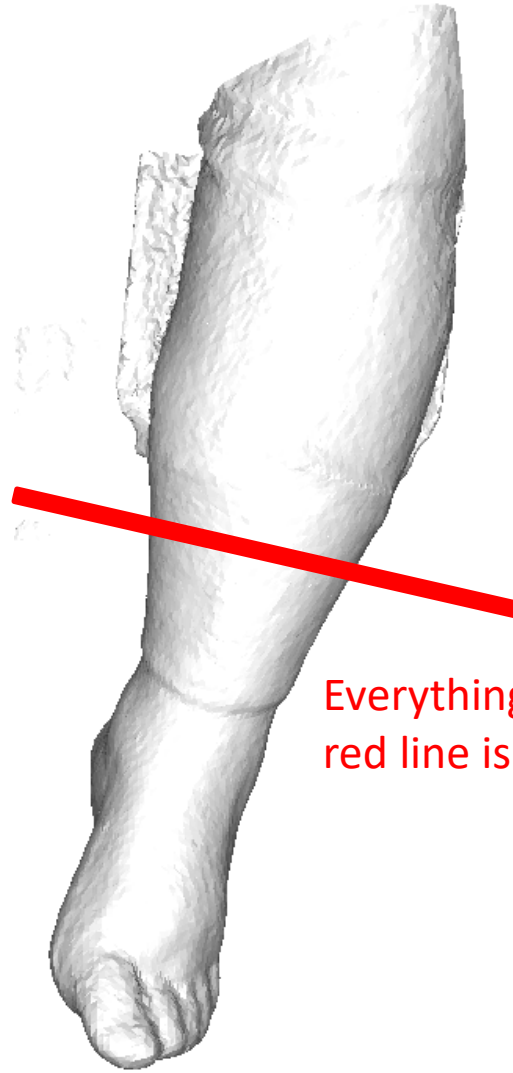
Objects touching patient below knee



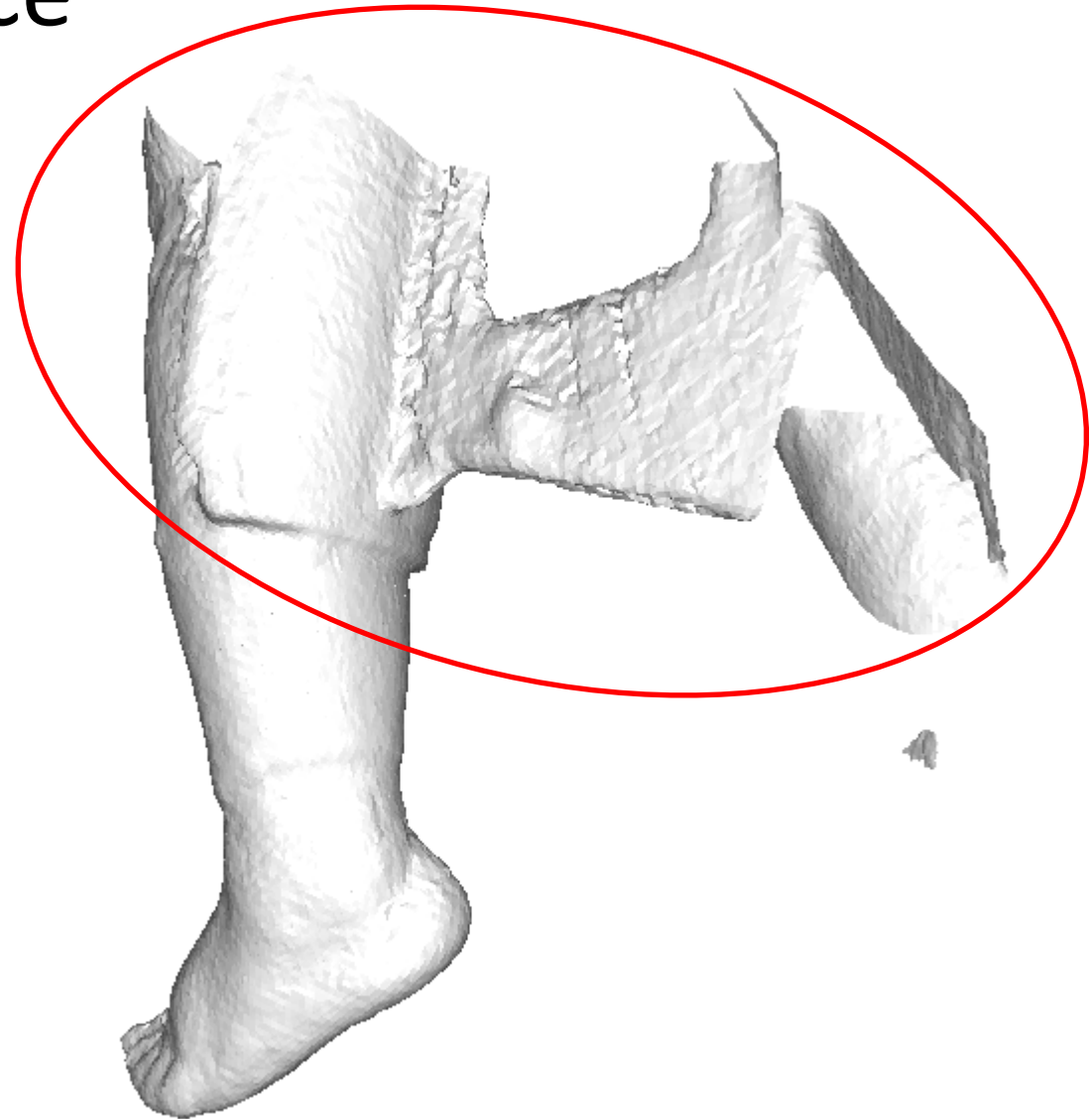
Plantar-flexion which will
Require correction

Example: Calf resting on device

Objects touching patient below knee which cause deformation of calf muscle and as a result, we lose most of patient's anatomy.

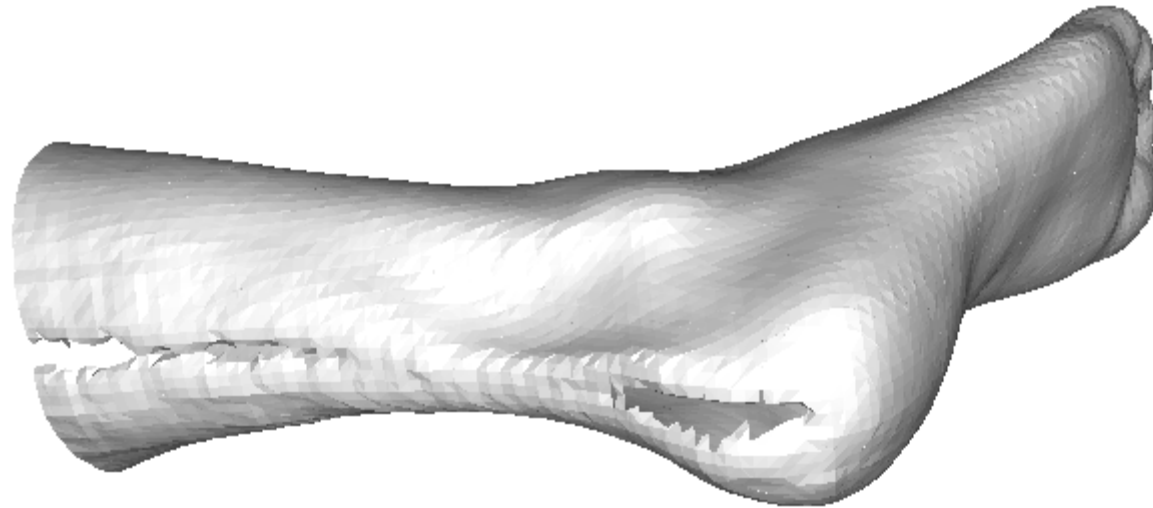


Everything above red line is lost



Example: Insufficient scan

Issue: Data missing along posterior and plantar-flexed



Example: Insufficient scan

Issue: Data missing along posterior and plantar-flexed

PLEASE NOTE:

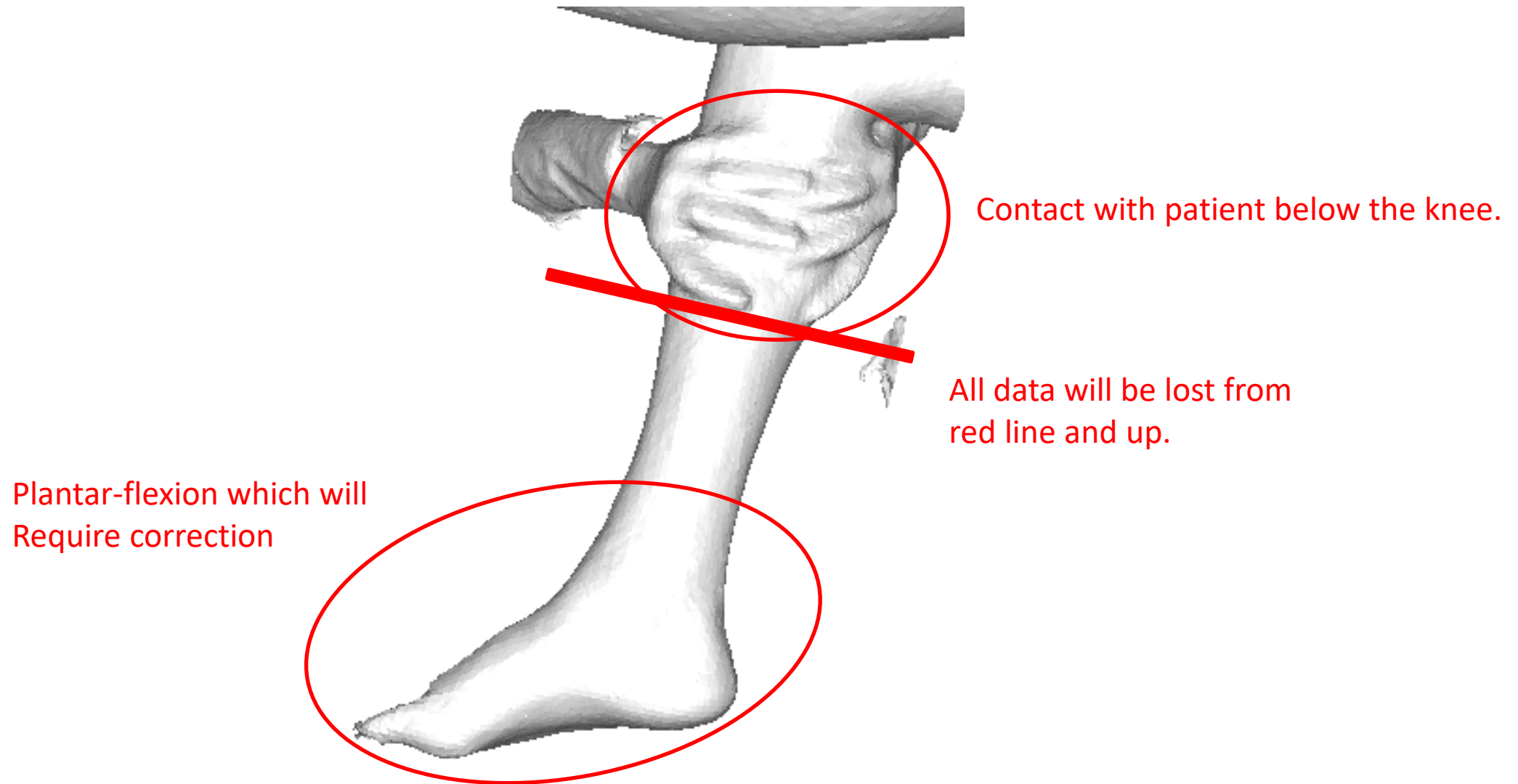
If the patient is wearing pants, please have them pull the pant legs up as close to the knee as possible.



Contact with patient below the knee.

Example: Insufficient scan

Issue: Data missing along posterior and plantar-flexed



Example: Insufficient scan

Issue: Short scan and missing data at crucial portion of brace.

Angled cut off
reduces the
overall height of
the scan.

All data above
thick red line will
be lost resulting
in short scan.



Significant plantar-flexion

PLEASE NOTE:

Angled scans like this reduces the overall height of the scan. This happens when you start out by locking the scanning position into place and your iPad is tilted at an angle that is not parallel to the angle of the patient's limb.

* See **EXAMPLE** on next slide

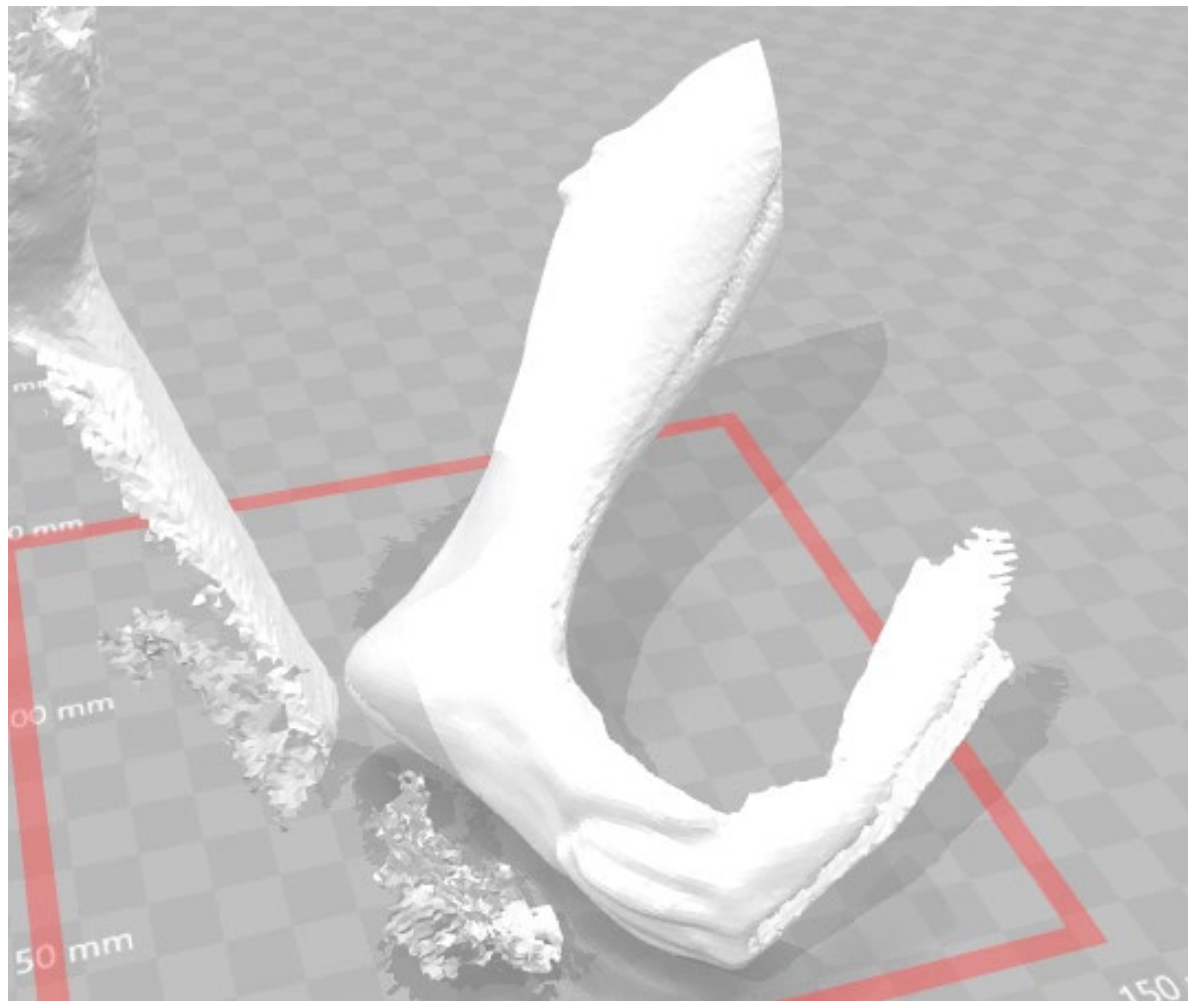


It's important to note that this is not bad just as long as your wireframe box is set to a large enough size that a proper scan height is captured even from the lowest point of the scan at the calf such as in this photo.

However, it is a good practice to start out by angling your iPad to match the angle of the patient's leg, then press your scan button to lock the position into place, then continue scanning.

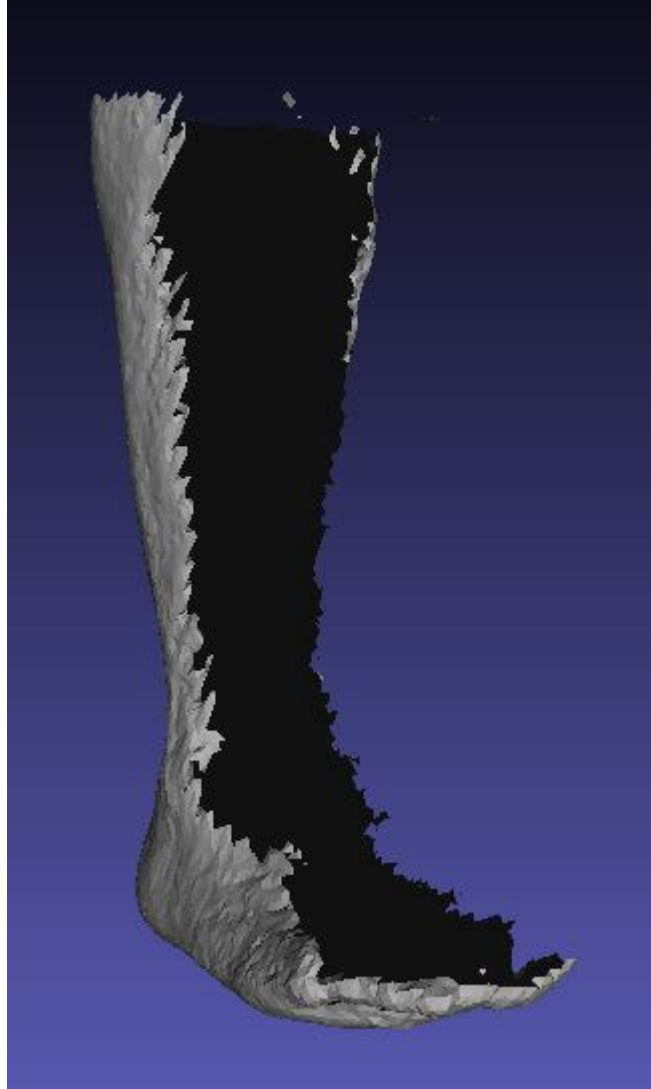
Example: Insufficient scan

Issue: Hand covering met heads, vital portion of brace.



Example: Insufficient scan

Issue: Scan is not circumferential and missing a large portion of patient's anatomy.





CONSIDERATIONS

Considerations & Tips



- **Natural sunlight**
 - While office lighting is okay, natural sunlight may distort the image capture while scanning.
- **Distance between scanner and subject**
 - If the scanner is held too close to the subject the scanner will not capture the data needed.
 - The scanner may need to be held around 20-30 inches away from subject.
- **Distance between patient's foot and floor**
 - Because of the distance needed to capture the scan, depending on how your patient is positioned, be aware of elevating the patient's foot up off the ground far enough to capture the posterior portion of the patient's heel.



Considerations



- **Get low to the floor while scanning**
 - While scanning the lowest portion of the patient's limb, you may need to position yourself on the floor in order to capture a complete scan. Simply bending your knees may not get you low enough.
- **Patients who cannot be scanned**
 - At times you will find that there are patients which cannot be scanned due to either a condition which does not allow them to keep their foot still for a long enough period of time in order to take a proper scan or the practitioner decides that they need to correct the foot/ankle into subtalar neutral while capturing the scan.
 - We recommend casting the patient using casting materials, then scan the cast.

Considerations



- **Assess your scanning area and layout of room**
 - Many clinical rooms are limited with space. Because scanning requires the practitioner to move around the patient 180° at a distance of approximately 30”, you may consider moving clinical room furniture/equipment to ensure you have adequate space to capture a proper scan.