

Transfemoral Prosthesis Interface

Patient Evaluation

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Quality for life

Disclosure

Some content courtesy Northwestern University Orthotics & Prosthetics Program (NUPOC), credit given per slide.



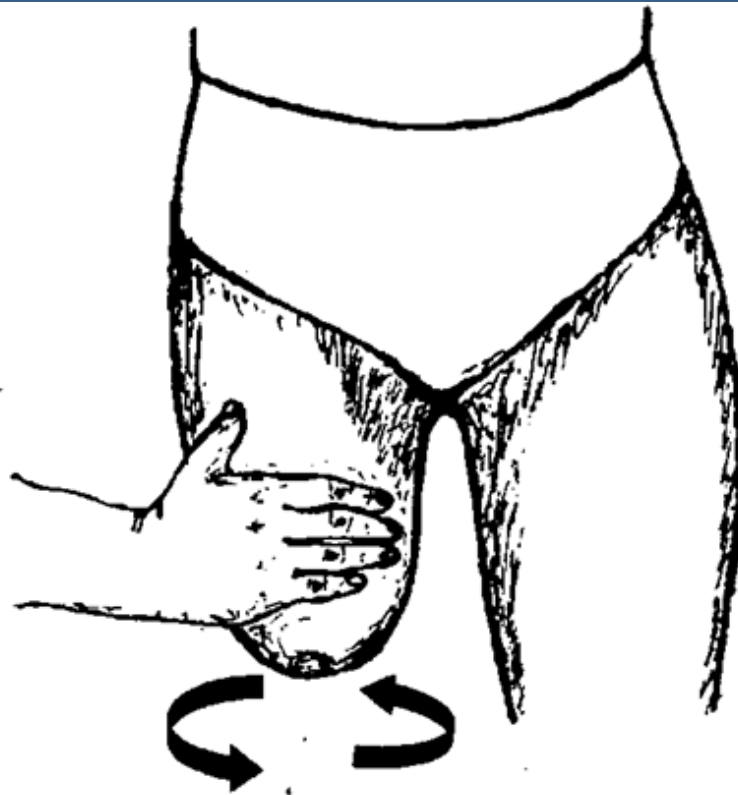
Residual Limb Evaluation

Visual inspection and palpation of the residual limb will help identify conditions which may affect the fit and alignment of the prosthesis.



Residual Limb Musculature

Instruct the person to tighten his limb muscles.



As you place your hands on the limb and try to rotate the tissue:

Firm musculature will have little or no movement

Average musculature will have some movement

Soft will have a great deal of movement.

This assessment will be used to establish tension values for a suction interface.

Musculature at Gluteal Fold

Place a finger under the person's ischial tuberosity (IT) and ask him to tighten the hip extensors. If the person's IT is difficult to palpate and is lost with extensor action then the musculature is considered to be “firm”.



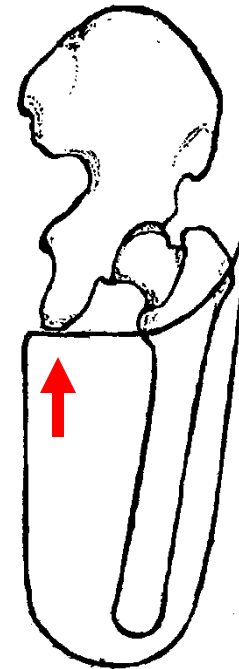
Musculature at Gluteal Fold

If the patient's IT is easy to find and the prosthetist has little difficulty palpating the IT with hip extensor firing then the musculature is marked as “soft”.

“Average” musculature will provide a palpable IT upon relaxed muscles and more difficult with contracted extensors.

Previous Bearing

“Previous bearing” indicates whether the person is a previous wearer of a ischial bearing prosthesis. A previous bearer will usually have a “toughened” ischial tuberosity (IT) which means it is not sensitive to palpation. A non-previous wearer may seem more “padded” and the IT will be more difficult to palpate.

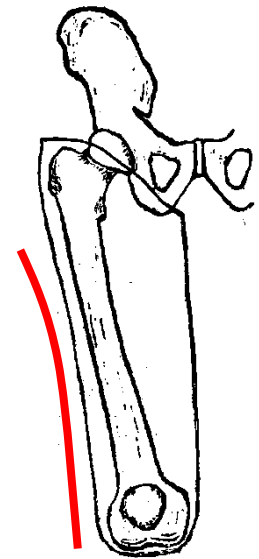


Residual Limb Contour

“Residual Limb Contour”

evaluates the lateral femoral contour. It is usually flat.

A person with the femoral condyles present will have a convex outward shape.



Adduction Angle measurement

Measure relative to vertical.
Ensure pelvis is level.



Adduction Angle result



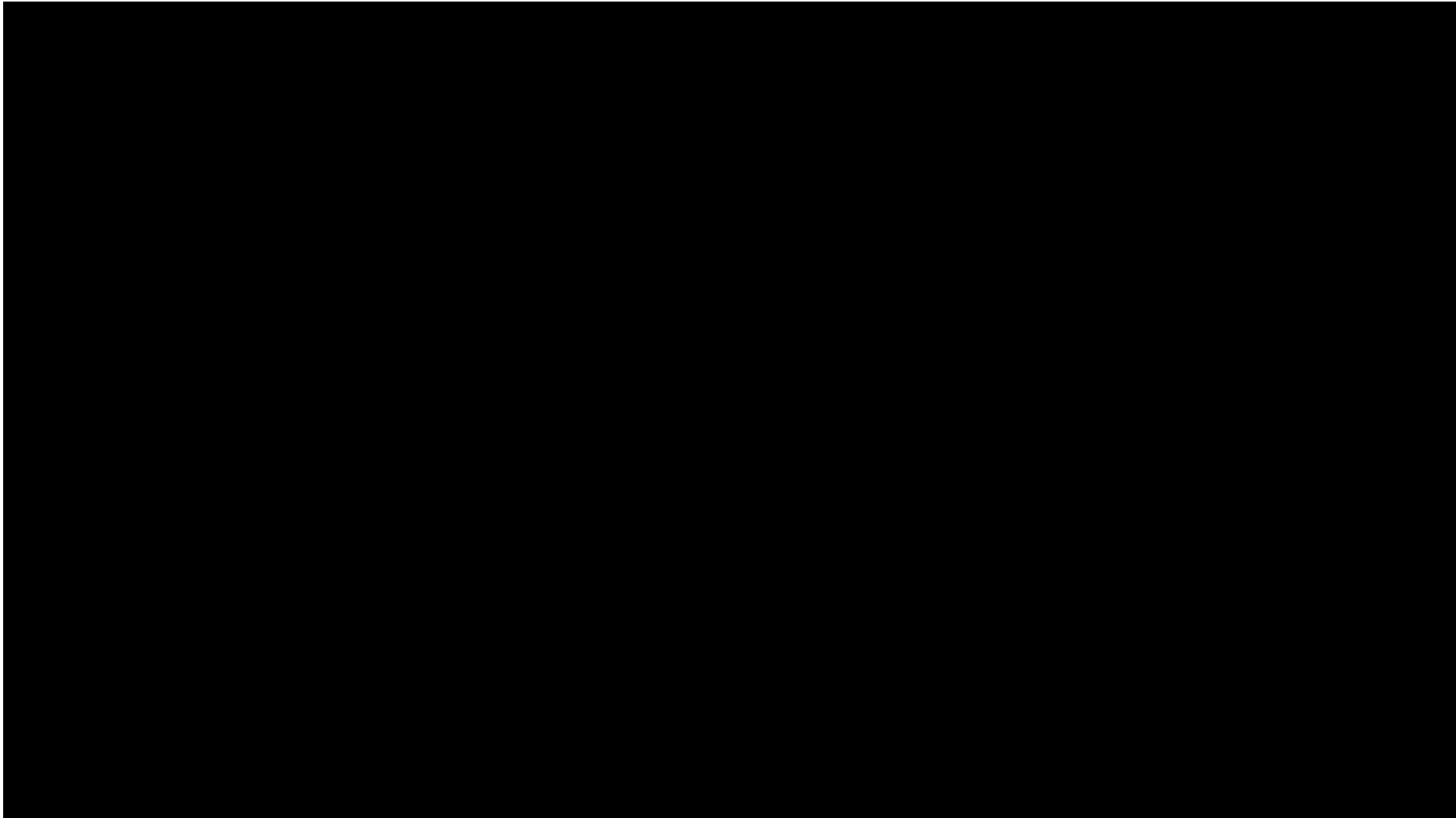
Alignment Line

Socket adduction without contraction

Position of Greater Trochanter



The greater trochanter of the femur is usually located approximately at the sagittal midline. If it deviates from that position note the anterior or posterior location.





Circumference measurements



Once the residual limb has been evaluated and special conditions have been noted, the residual limb will need to be measured carefully using the following techniques.

These measurements will be used to modify the cast and to fabricate the prosthesis.

Skeletal Medio-Lateral (ML) measurement



Skeletal ML measurement



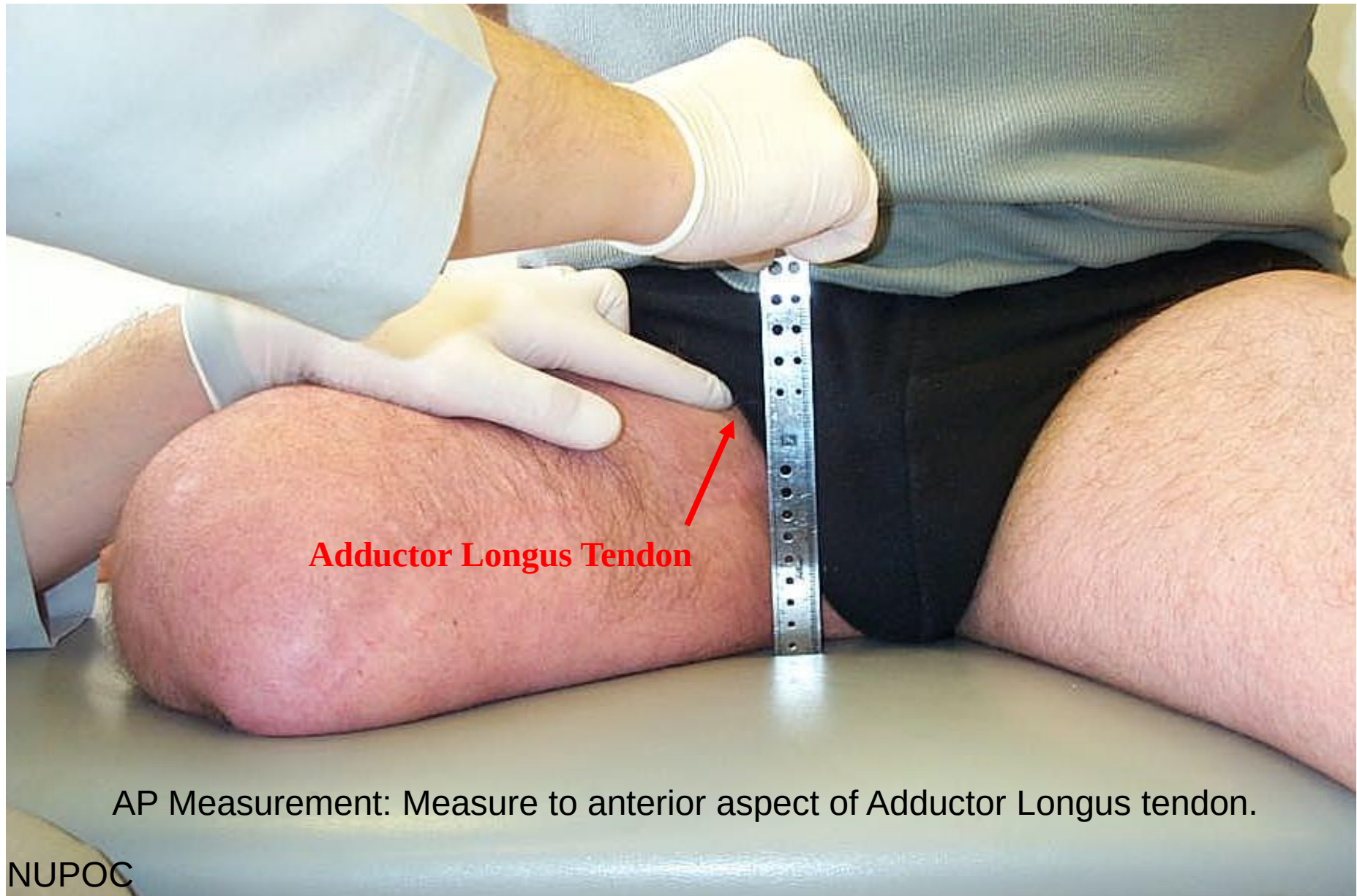
Recording Anterior-Posterior Dimensions

An accurate **AP dimension** is necessary so the anterior wall will support the limb and hold the ischial tuberosity on the posterior shelf.



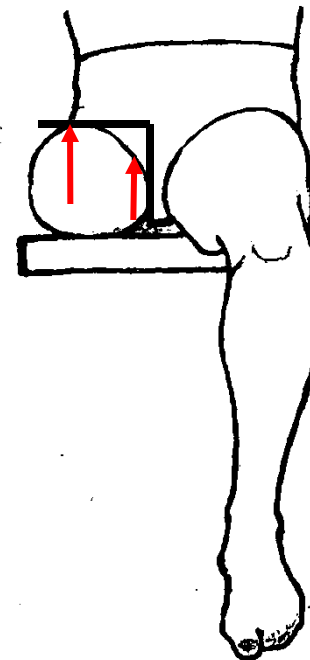
Anterior – Posterior (AP) measurement

ottobock.



Rectus femoris prominence

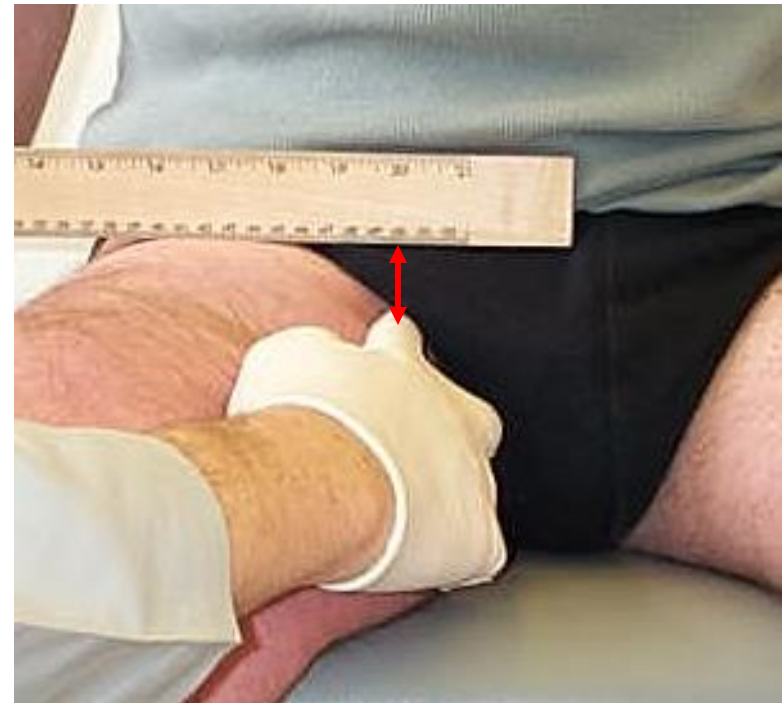
With the person seated rest a straight edge horizontally on the rectus femoris muscle. Palpate the adductor longus tendon as far proximal as possible and compare its height to the height of the rectus femoris.



Rectus femoris prominence

If the comparison is greater than

- 25 mm then the rectus femoris is “prominent”.
- Between 18 and 25 mm then the prominence is considered “slight”.
- Less than 18 mm difference is considered “even”.



Subcutaneous Tissue

Subcutaneous tissue covers the body and lies between the muscle and the skin. This is fatty tissue made up primarily of fluid. To gauge the subcutaneous tissue, pinch the flesh of the residuum between your thumb and index finger.



Subcutaneous Tissue

Measure the thickness of the fold
between your fingers.

- if it is less than 12 mm it is light;
- if it is 12 mm it is average;
- if it is less than 12 mm it is heavy.

Conditions of the cut bone

The femoral end should be palpated for sharp edges, bone spurs or sensitivity.

Note the presence and location.

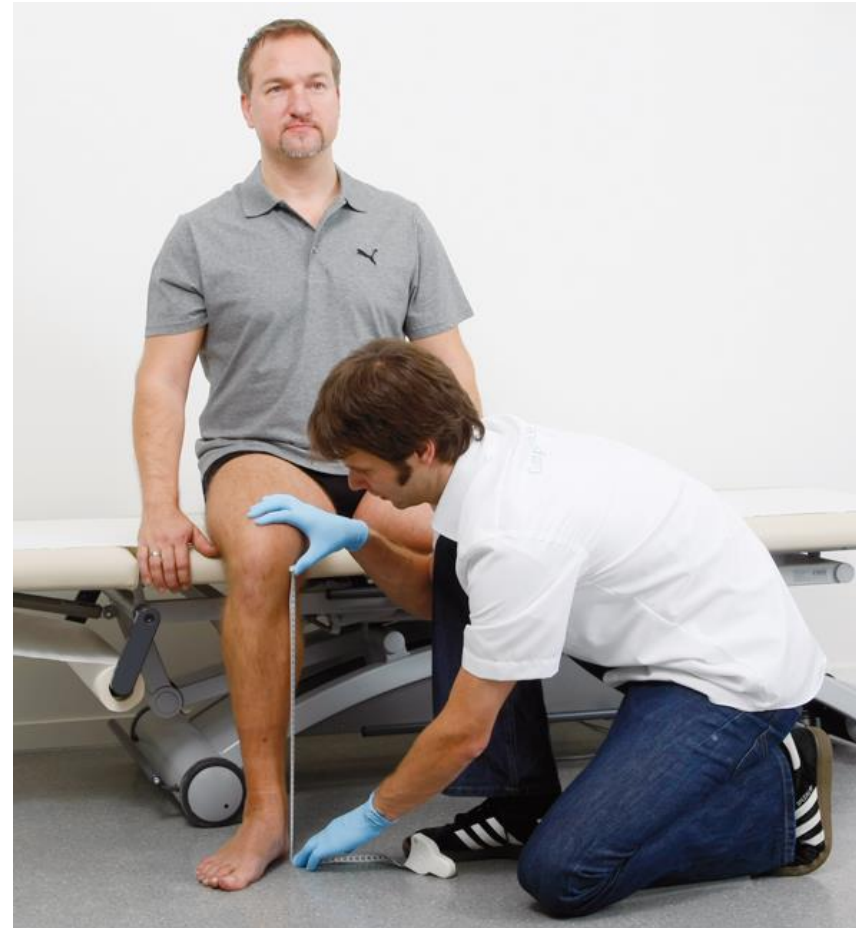


Sound Side Measurements

MTP to floor measurement will be used in bench alignment to establish the knee center.

The patient sits without shoes, with knee bent 90°, and the foot rotated approx. 15° outwards.

Measure MTP-floor, and add 20mm.



Sound Side Measurements

Circumferences



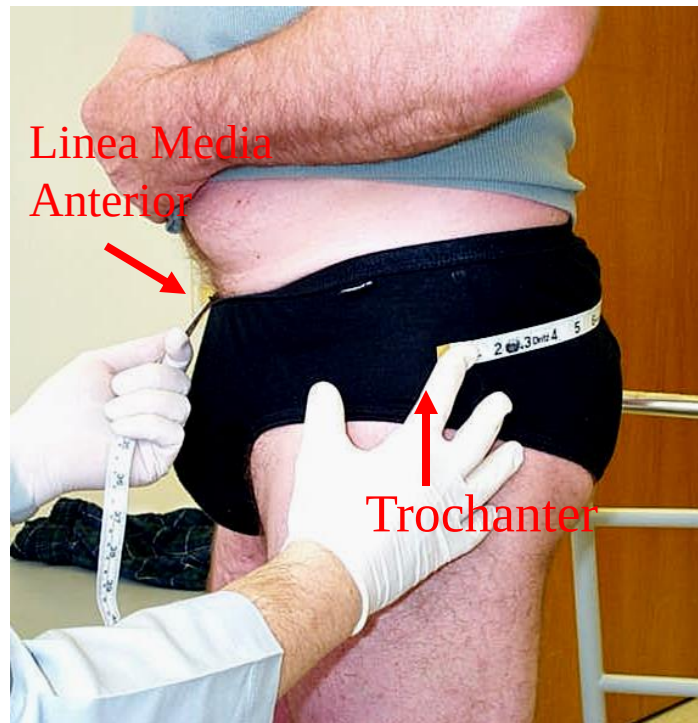
Sound Side Measurements



Ischial tuberosity to floor measurement will be used to establish the overall length of the prosthesis.

It is taken on the sound side since the pelvis on the amputated side is non-supported and will be lower thus yielding a length that is too small.

Pelvic Measurements



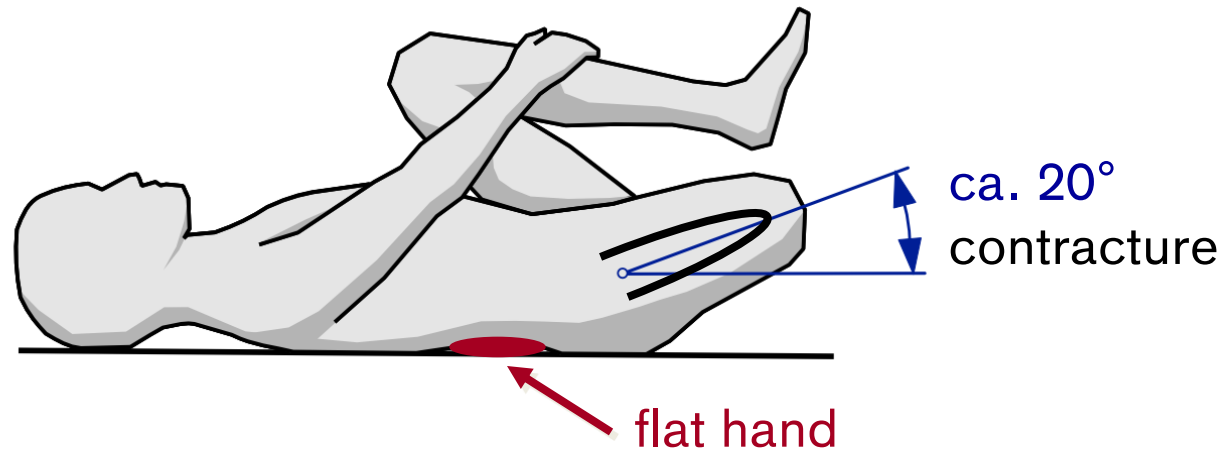
Lateral view

Record any pelvic circumferences necessary for auxiliary suspension belts.
(I.e., trochanter to anterior midline needed for a silesian belt)

Shoe Size and Heel Height



Thomas Test - Procedure



“Thomas test”

Evaluation of ability to extend leg at hip joint

Procedure: (**Supine position**)

- Bend the healthy leg until there is no more lumbar lordosis (check this by placing hand between lumbar spine and examination table)
- In this position, the pelvis is secured in its normal position
- Pelvis tilts forward by approximately 12° -- this causes lumbar lordosis
- Possible to compensate for increased hip flexion contracture by intensifying lumbar lordosis -- patient merely appears to be adopting normal posture

Thomas test - Assessment

Normal

- Extension to neutral 0 position is possible, lower leg lies flat on surface
- With further bending, pelvis can be extended further
- If the examined leg remains on the flat surface, the extension angle of the pelvis will correspond to the over-extension ability of the hip joint.

Flexion contracture

- The hip to be examined does not stay extended on the flat surface
- It follows the continued hip flexion or movement of the pelvis with an increasingly flexed position
- The angle of the flexed, unhealthy leg to the examination table defines the flexion contracture

Next Step: Casting

Review the measurement and evaluation form and ensure it is accurate, understandable and complete.

Or use TF Design caliper



20 cm & 15 com



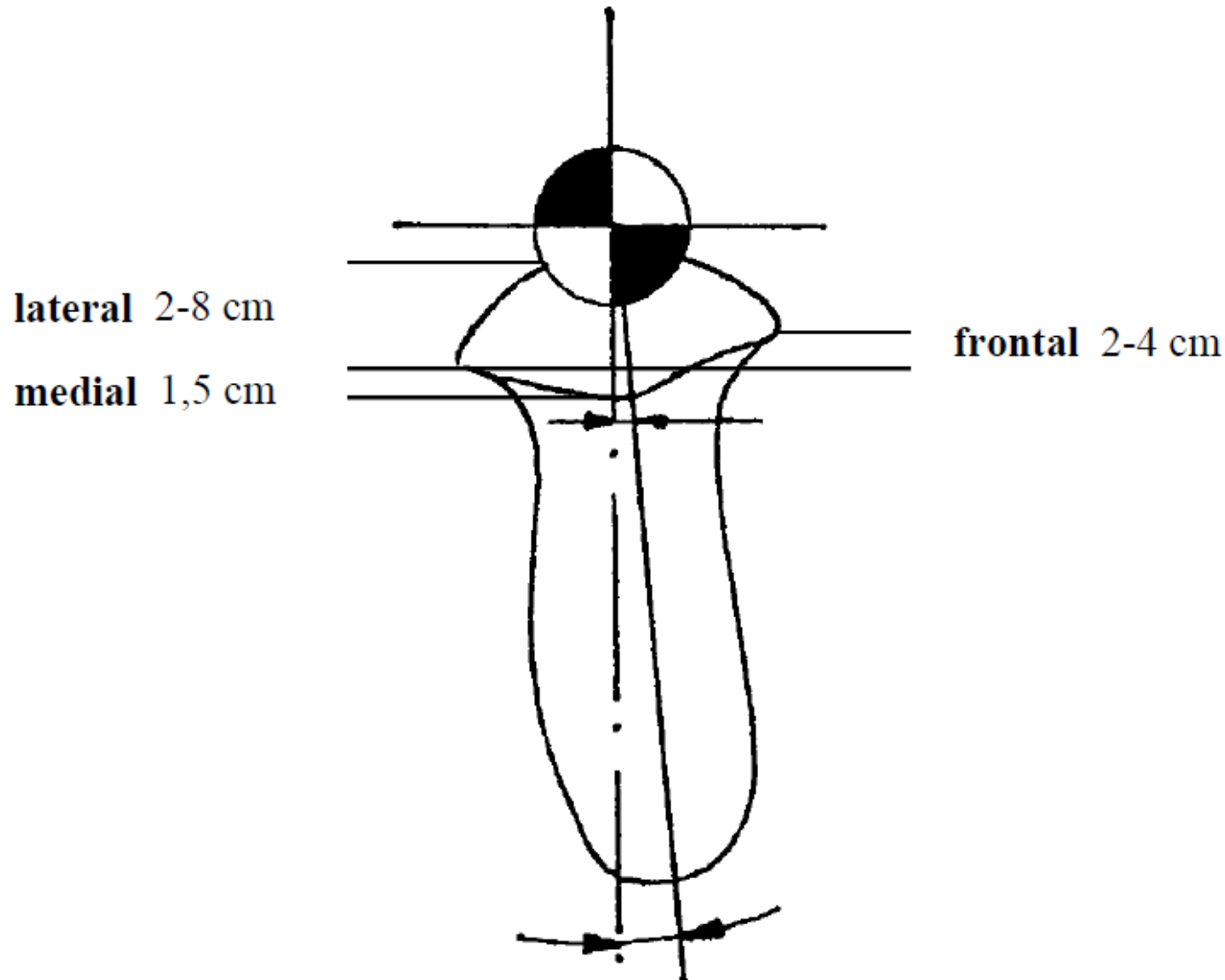


Quadrilateral socket casting technique

Hand placement

- 1. One hand horizontal under the tuberosity**
- 2. One hand along the frontal Scarpa's triangle**
- 3. Both hands build an angle towards the medial side**
- 4. The stump is in normal adduction and flexion**
- 5. Check shape changes under muscle contraction**

Quadrilateral socket proximal brim trimlines height



Any
questions?

Let's get started!

3R60 https://youtu.be/rbfi_XqzSR8

3R80 https://youtu.be/SlexU8fIw_Y

Chabloz IC casting video







See also next slide





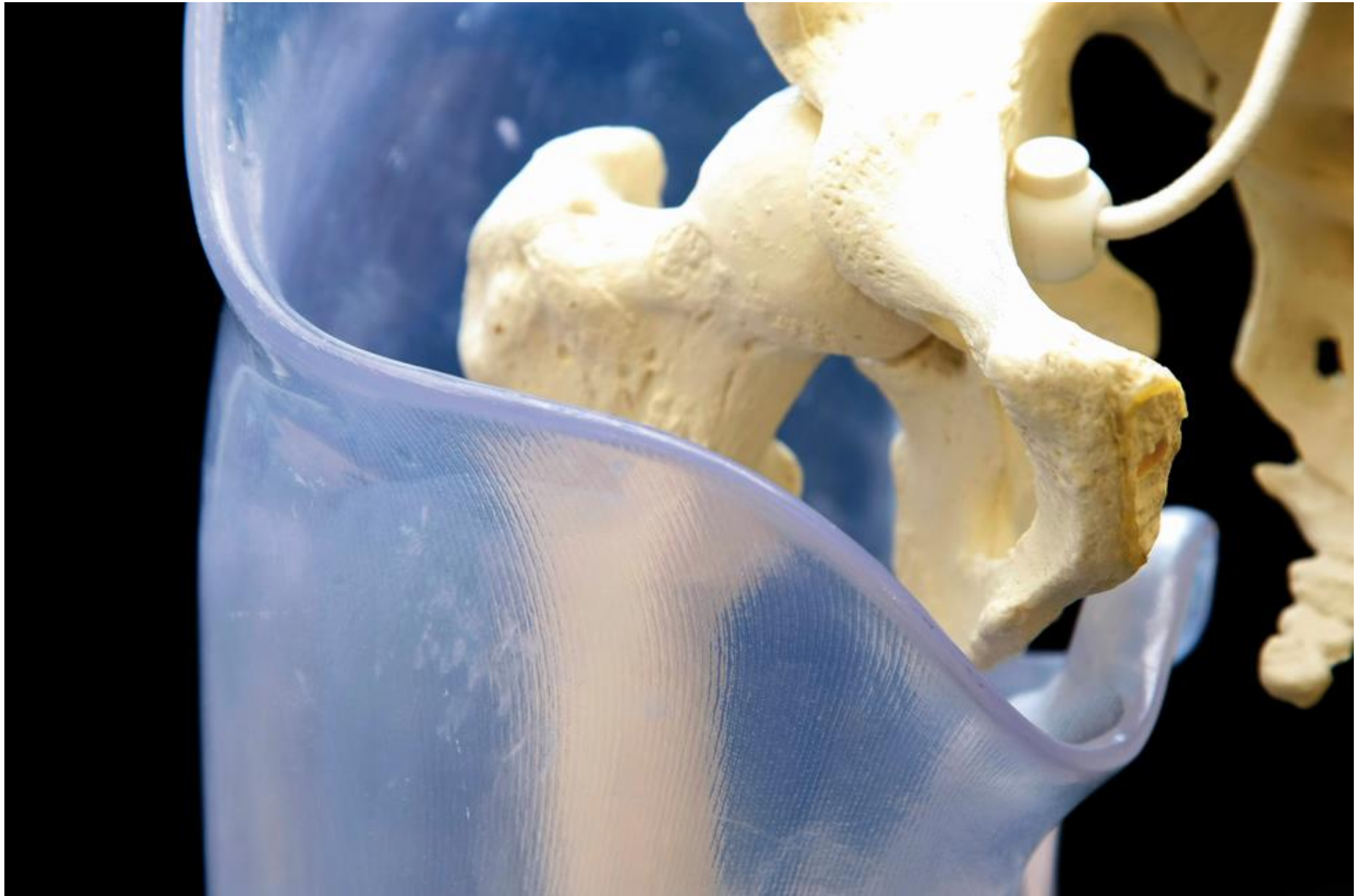












Acknowledgement:

**Where noted text and photo provided by Northwestern University
Prosthetics & Orthotics program.**

Thank you very much
for your attention!

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