TRANS - FEMORAL CASTING

ORTHOMANUAL

The Standard Quadrilateral Socket (Hand Casting)

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based on pictures and experience
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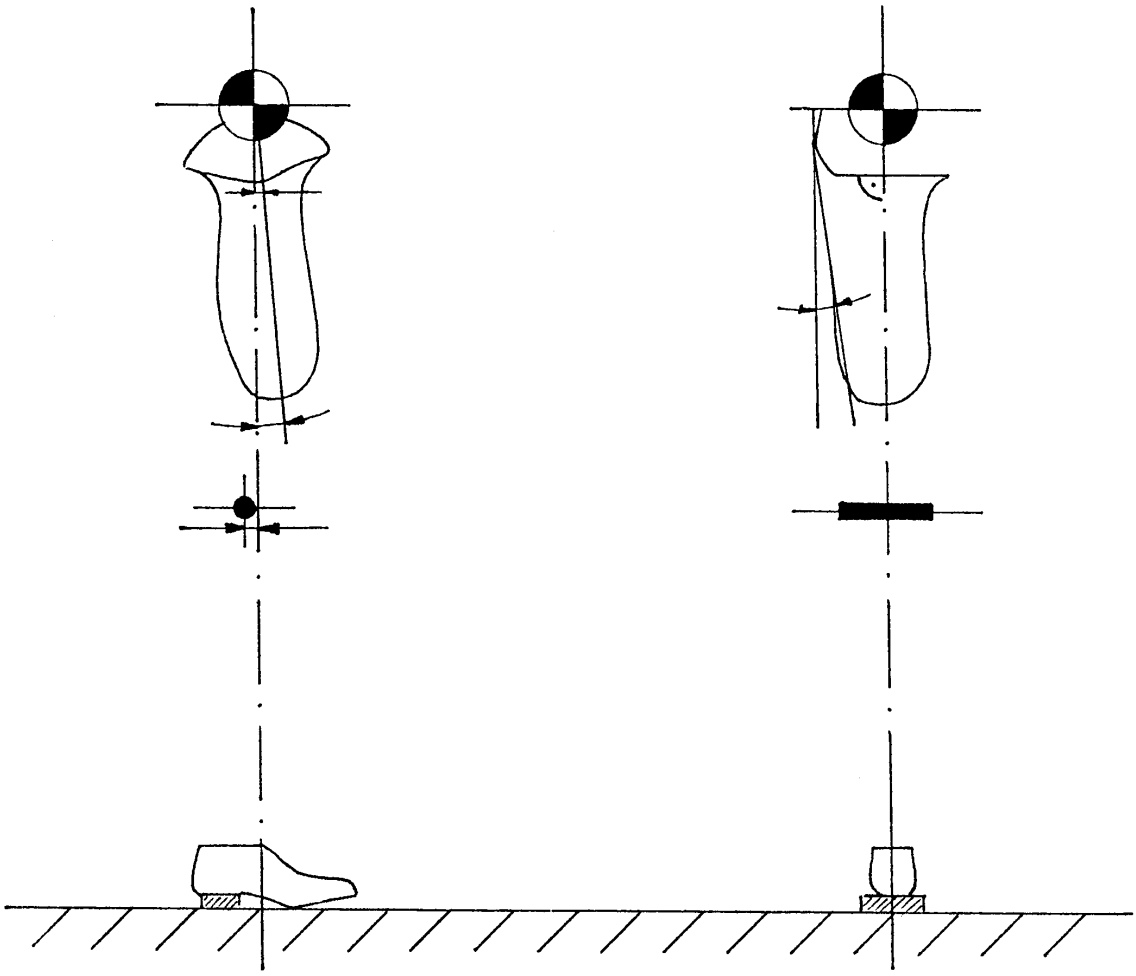
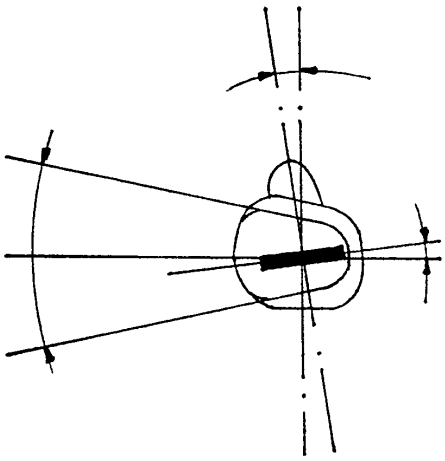
1. Introduction

This guide is written to repeat the standard procedures for **hand casting** of the quadrilateral socket. I am aware that more modern shapes under the names of "Narrow ML" or "CAT/CAM" are more functional for the patient. Nevertheless it is to mention, that they also tolerate less mistakes of the technician.

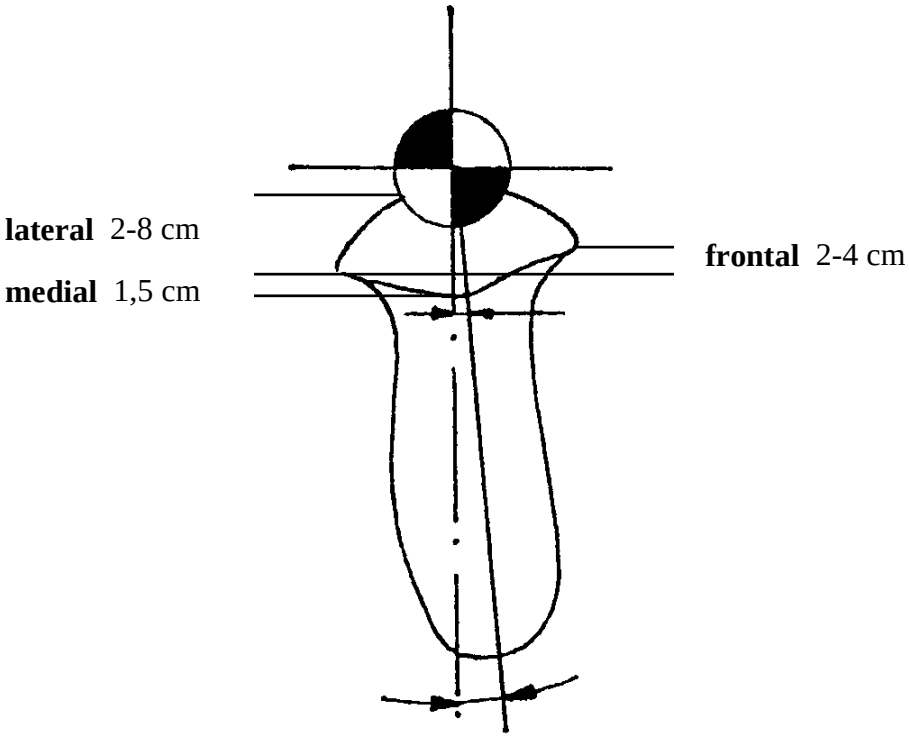
The quadrilateral socket can also be produced with good **brims** for the stump entry part, which facilitates work in mass production. But if the stumps are very short or have strong contracture, it is good to know how to do a socket without industrial prefabricated brims.

2. Socket & Prosthetic Standard Design



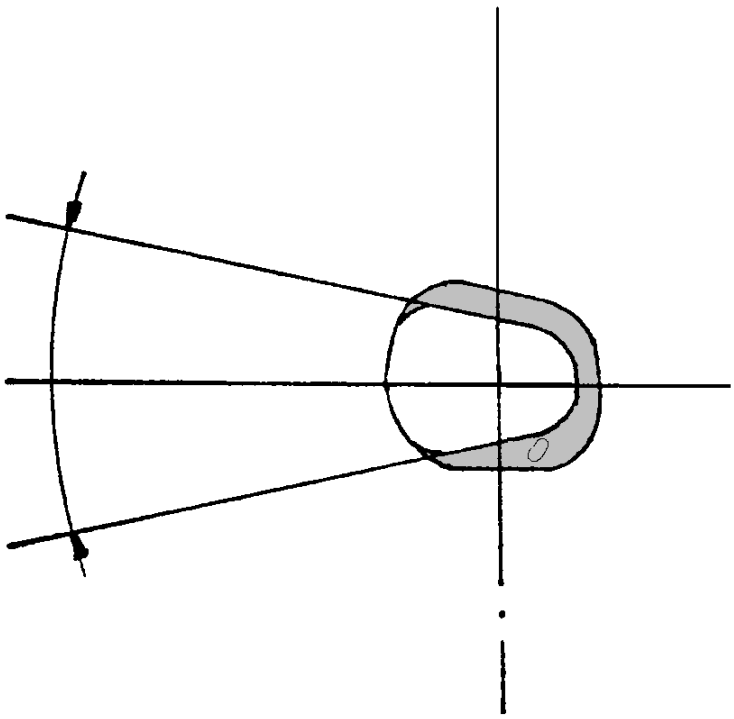


3. Standard Quadrilateral Socket Design

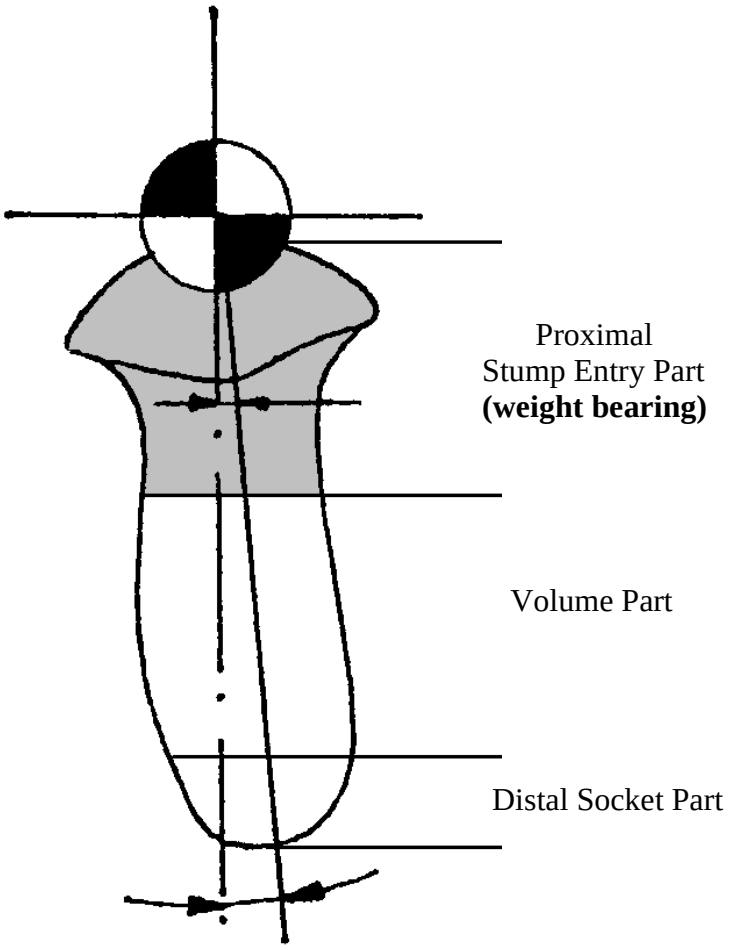


The level of the lateral and frontal wall depends on the stump length

- shorter stumps require higher walls for better pressure distribution and fixation



4. Different Socket Parts



The proximal **Stump Entry Part** can be replaced by a brim for mass production

5. Cast Preparation

- Patient Data Paper
- 3-4 POP- Bandages 15 cm
- Measurement tape
- Pencil
- Plaster- scissor
- Stockinet for the residual limb and pelvis
- Stockinet for the stump (if possible TUBIGRIP)
- Vaseline
- Water pot

6. Casting of the Trans-Femoral Stump

- Cover the stump with vaseline
- Place one stockinet over the residual limb/pelvis and one over the stump (if possible elastic, TUBIGRIP)

- Marks on trochanter and along the femur

- Marks along the femur for horizontal measurements all 5-7 cm

- Take the circular measurements:

most important:

1. Proximal circumference
2. Centre muscle circumference
3. Distal circumference before the stump end

- Cover the stump with 4 layers of POP Bandage

- Use the classic cast grip for quadrilateral socket design:

1. One hand horizontal under the tuber
2. One hand along the frontal scarpa 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

- Lateral view

- Frontal view

- Cut the rope and stockinet

- Remove the negative model from the patient

7. Modification of the Negative Model (Check Socket)

- Prepare the proximal trim line of the negative model

- Reduce the volume of the negative model along the medial, proximal stump entry part about 2-3 cm

- Reinforce the plaster model around the proximal brim from outside to get stronger

- The modified **check socket**

- Back view

- Medial view

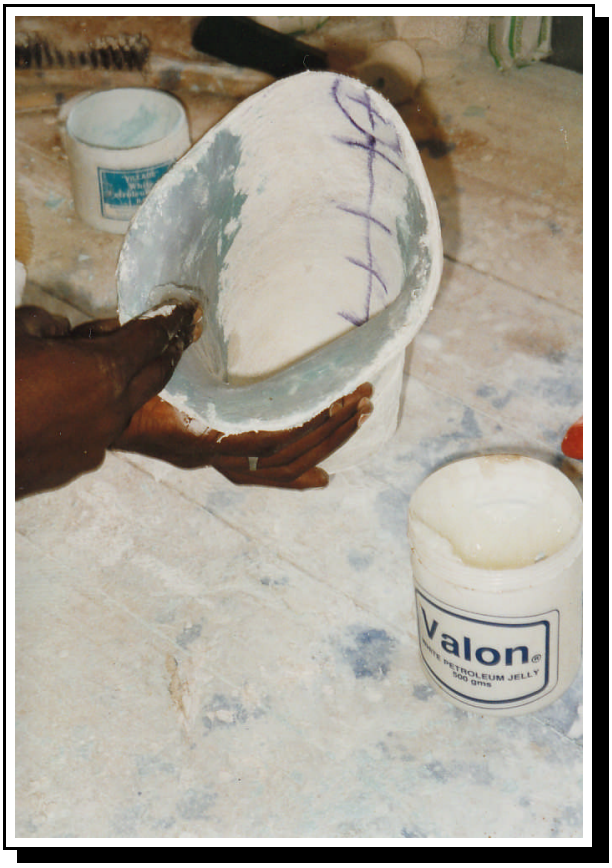
- Reinforce the socket from outside with a POP- bandage for the check on the patient

- **Check** the **socket** on the patient and correct the volume if necessary

- Perfect volume means that **the patient can fix the socket with** his **muscle contraction**

- Apply lateral and frontal a plumb line on the check socket in normal position

8. Preparation of the Positive Model

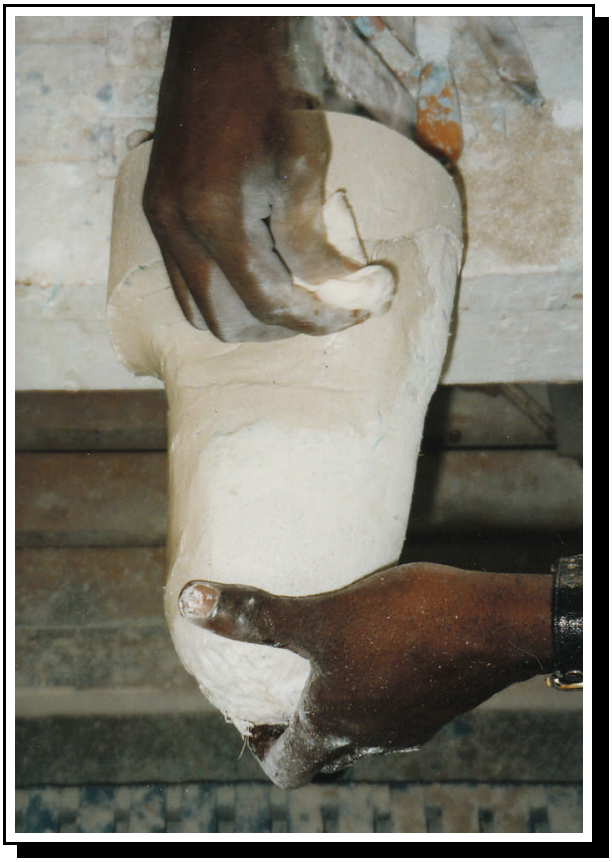


- Isolate the check socket with vaseline

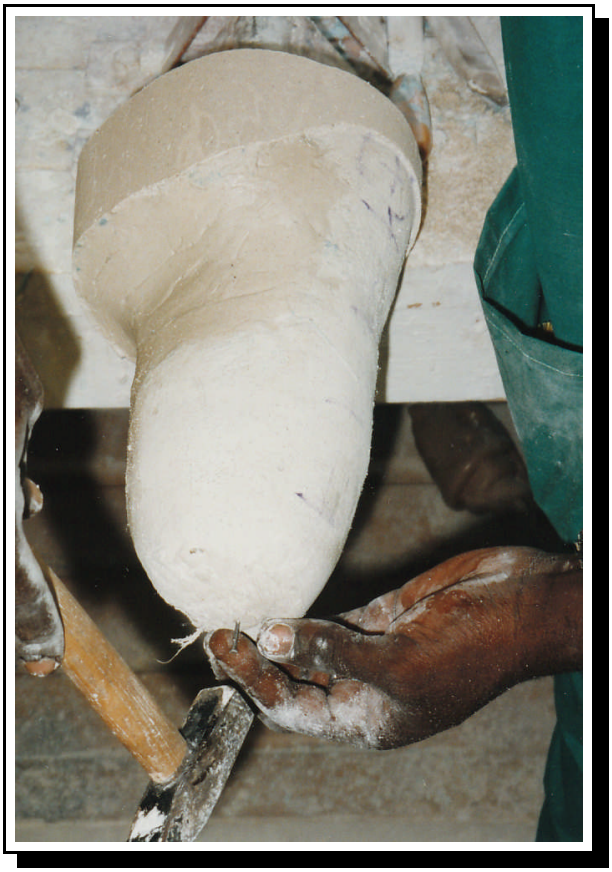
- Place the check socket in a neutral and functional position in a sand box
- Extend the model with a POP-bandage

- Place a iron pipe in neutral functional position in the model

- Remove the check socket



- Remove the vaseline with hot water



- Extend the stump length about 1-2 cm

The Finished Model:

- Back View

- Frontal View

- Lateral View

- Medial View

9: References

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