

Bk amputation

BY ruqaya



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Workshop orientation of prosthesis

Hope for Children and Aged Rehabilitation prosthetic workshop addresses the needs of patients living with a partially or fully missing upper or lower, which may be caused from amputation, disease, or congenital deformities. Our prostheses are a unique combination of appropriate materials, alignment, and construction to match the functional needs of the individual.

We repair or replace damaged or faulty prostheses and also provide education and training to new patients on the correct and safest use of our prostheses to expand its life span.

With the help of HOPCAR, a total upper limb prosthetic replacement was made for a female patient from Duayaw-Nkwanta in the Ahafo Region. The following prosthetic conditions are managed at our facility:

- 1-Trans tibial amputation
- 2 _Trans femoral amputation
- 3_Trans radia amputation
- 4_Trans humeral amputation
- 5_Partial foot amputation



Casting workshop of prosthesis

1 _Socket Router



2_ Oven



3_Richard nyberg



4_ Other machines



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Casting training

1 _the trim line

A trim line should be drawn on model this is a provisional trim line, the final trim being decided when the amputee wears the resulting socket



2_The tendon bar

The model is placed in the mandrel with the tibial crest uppermost. A cut is made with a round surform at the level of the patella tendon indelible mark.



3_The medial flare

Once the Medial aspect plaster is cut away to form a weight support area at the medial flare. The plaster removal should not be limited to the area distal to the indelible mark for the medial flare



4_The medial aspect the tibia

Plaster is removed to a depth of 2 to 3 mm over the area of the broad, fairly flat medial aspect of the tibia, which lies on the model between the line drawn for the medial border of the tibia

5_The lateral flare

The small shelf of the lateral flare lies directly under the lateral condyle of the tibia. The modification area lies between the lateral tibia border and the fibular and extends from the lateral flare to within 10_20mm from the end of the model

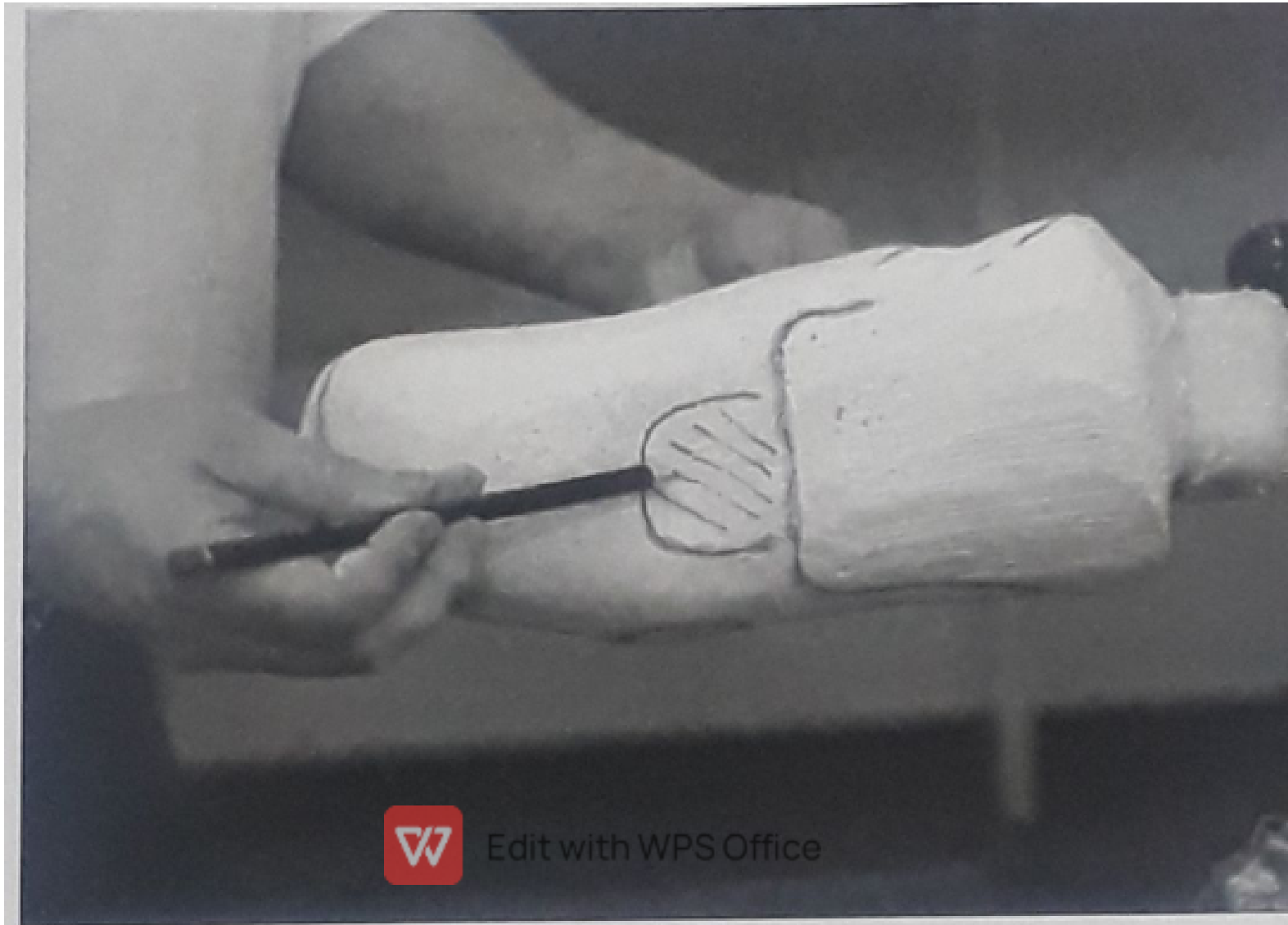




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6_The popliteal area

The popliteal impression will have been formed in casting. Any finger marks should be smoothed out



7_The supracondylar impressions

The medial supracondylar impression should have the shape produced during casting. The natural arch of the condyle should be reflected by the finger indentations.



Stump bandaging exercise

- 1_explain to the patient the reason and the method of bandage.
- 2_before bandaging the wound is first protected with sterile material
- 3_respect the patient participate
- 4_the bandage always starts at the narrowest point and proceeds to the widest point up wards to wards the heart
- 5_evenly distributed
- 6_extra pressure over the corners



Steps of casting exercise

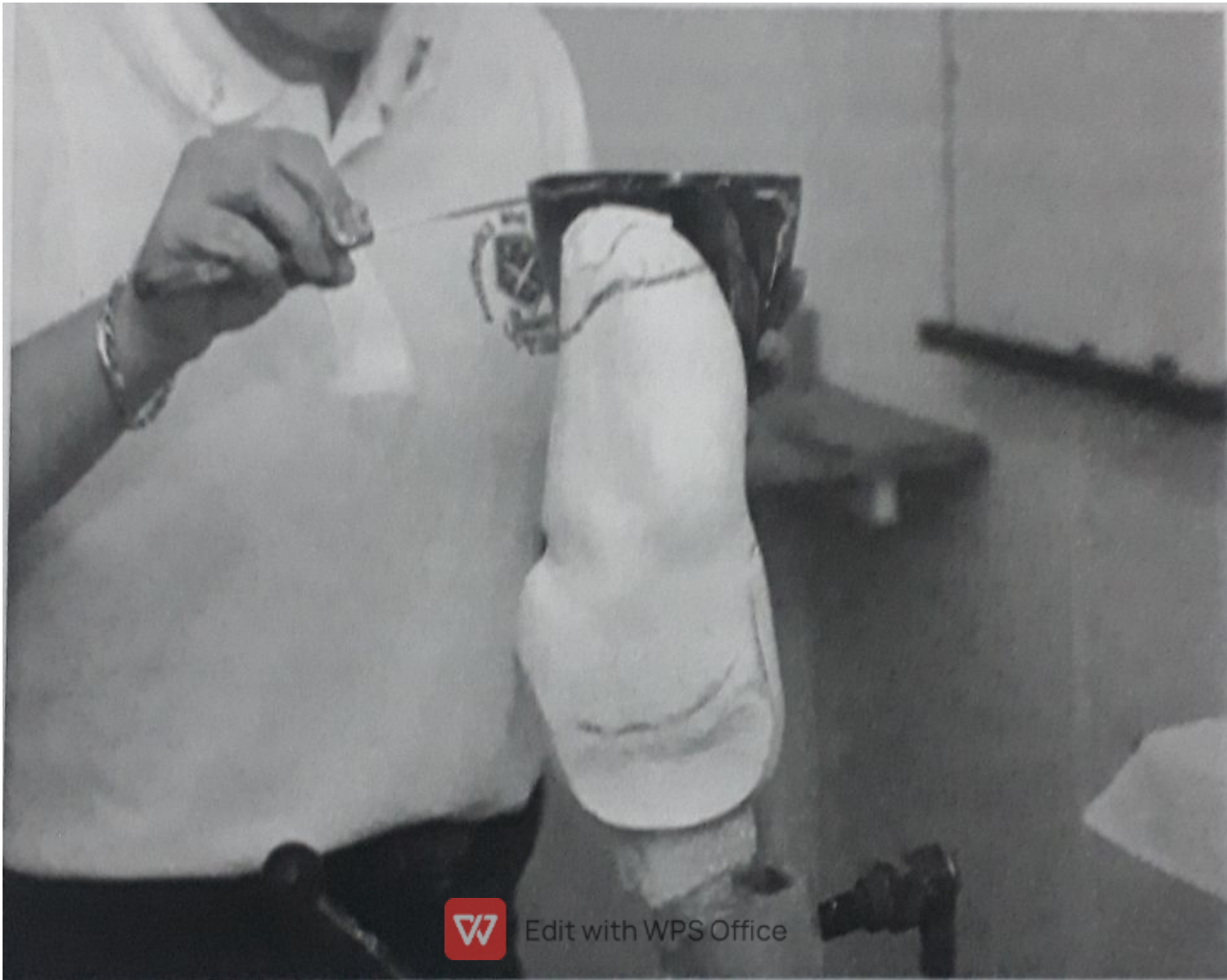
1 _The head of the fibula

Plaster should be built up within the generous area marked during casting. The build up 2_5mm deep and carefully blended at the edge.

2_The distal end

Observation of the indelible mark on the distal aspect of the model will show a line denoting the limit of the cut end of the tibia and circle marking the location of the cut end of the fibula.





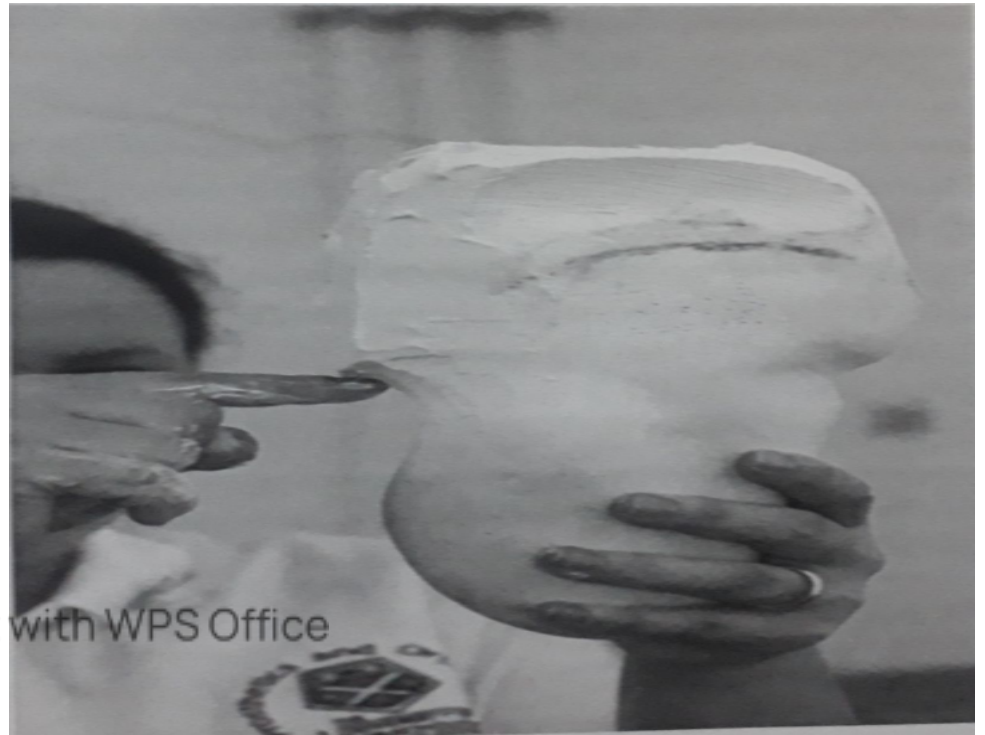
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3_The Anterior distal tibia

The previous build up should be extended 20_30mm up the Anterior distal crest of the tibia.

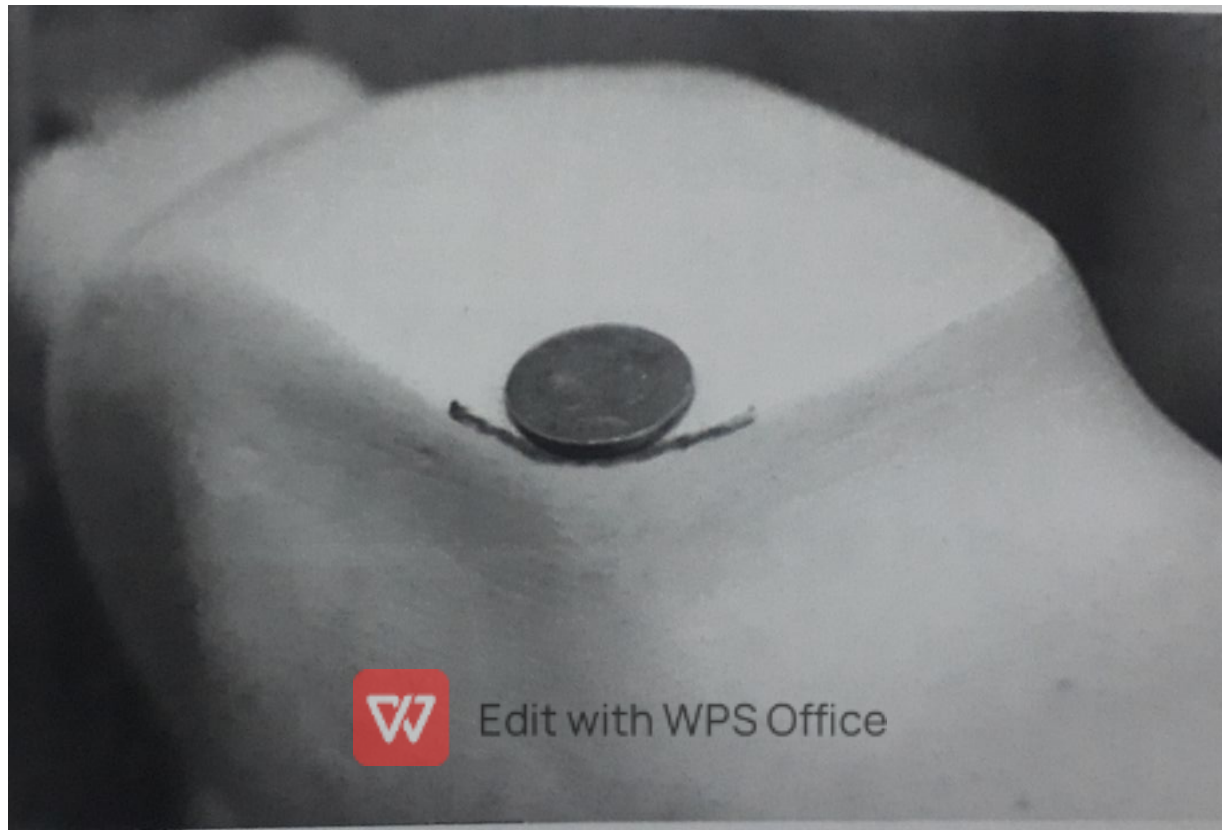
4_Adductor tubercle

A small build up of plaster is added to the area of the adductor tubercle as a precaution against any painful pressure.



5_The Posterior wall

The plaster build up for the Posterior wall is effectively a rectangular box, the distal edge being a continuation of the flare formed above the fingers during casting and the medial and lateral sides being extension of the medial lateral sides of the model



6_Other area

Any other areas identified during the stump examination as requiring protection should be built up. Examples are a prominent lateral tibia condyle and an extremely sharp tibia creast



Casting on amputee

Thumbs must be at a 45 angle to the long axis of the tibia. Be sure to bend the interphalangeal joints of the thumbs so that only the thumb tips touch the wrap



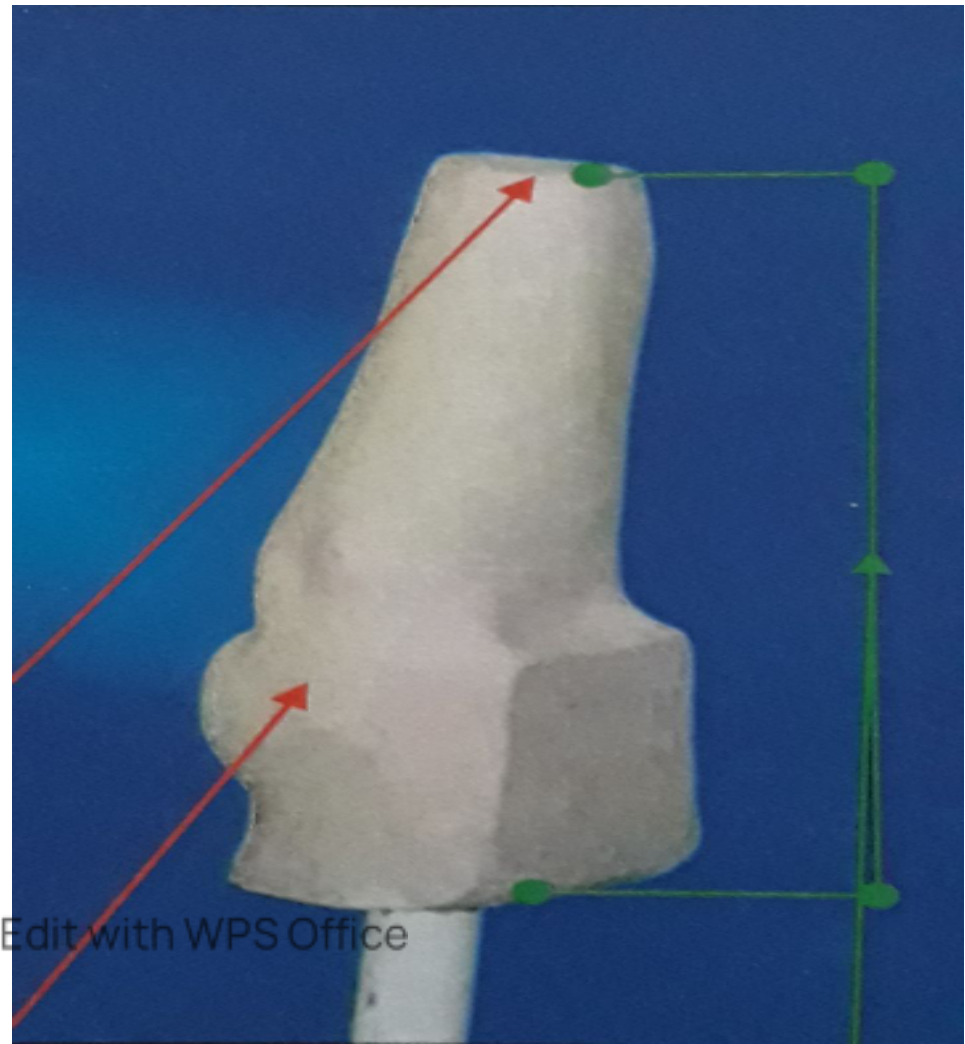
Modifications steps

- 1 _ selective removal of material from the positive model in areas tolerant to pressure
- 2 _ addition of material to areas less tolerant or sensitive to pressure
- 3 _ load carried by single central support
- 4_ support of same firmness
- 5_ we may also remove material over the firm material to increase compression of soft supports

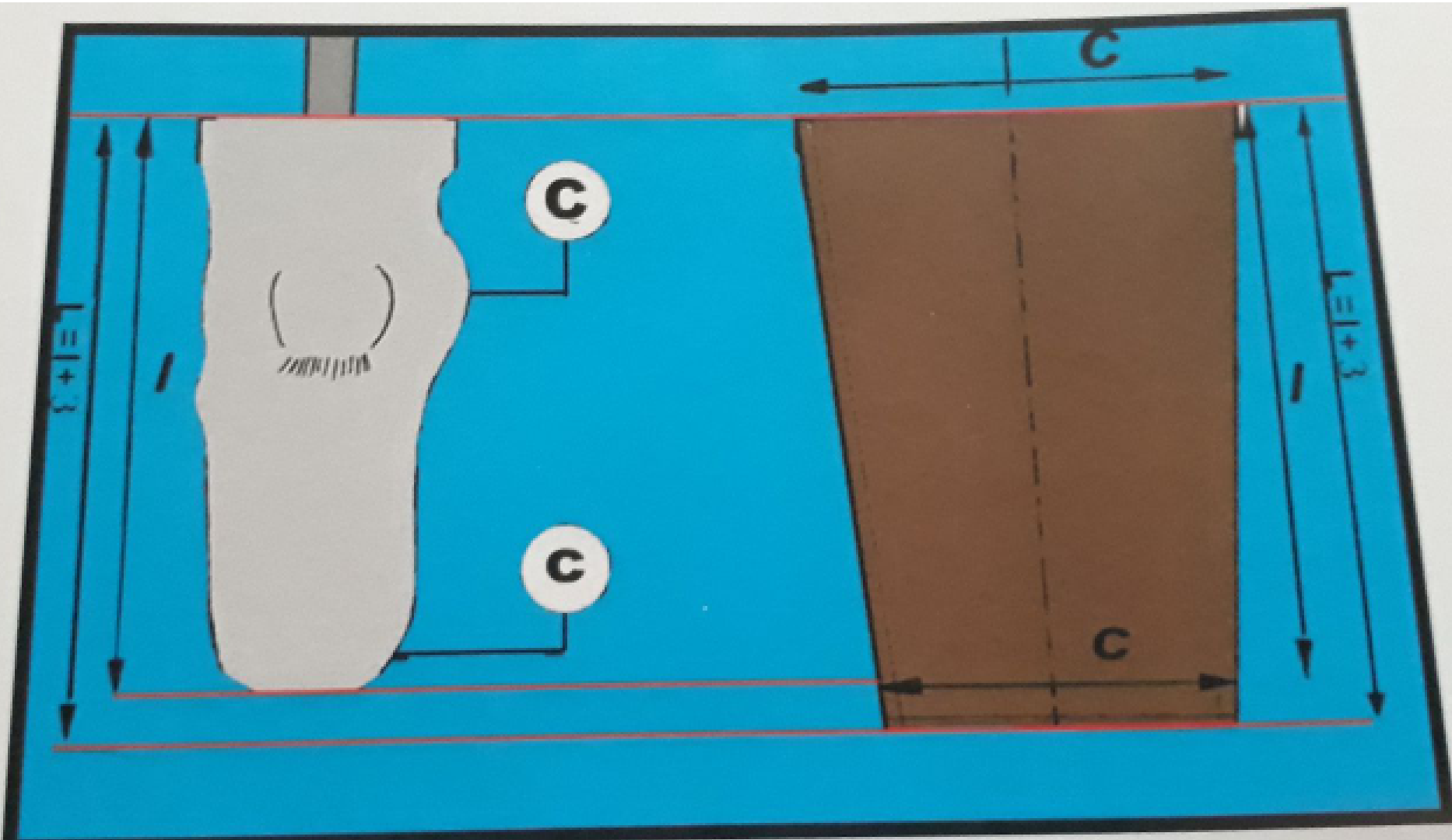


Soft socket design

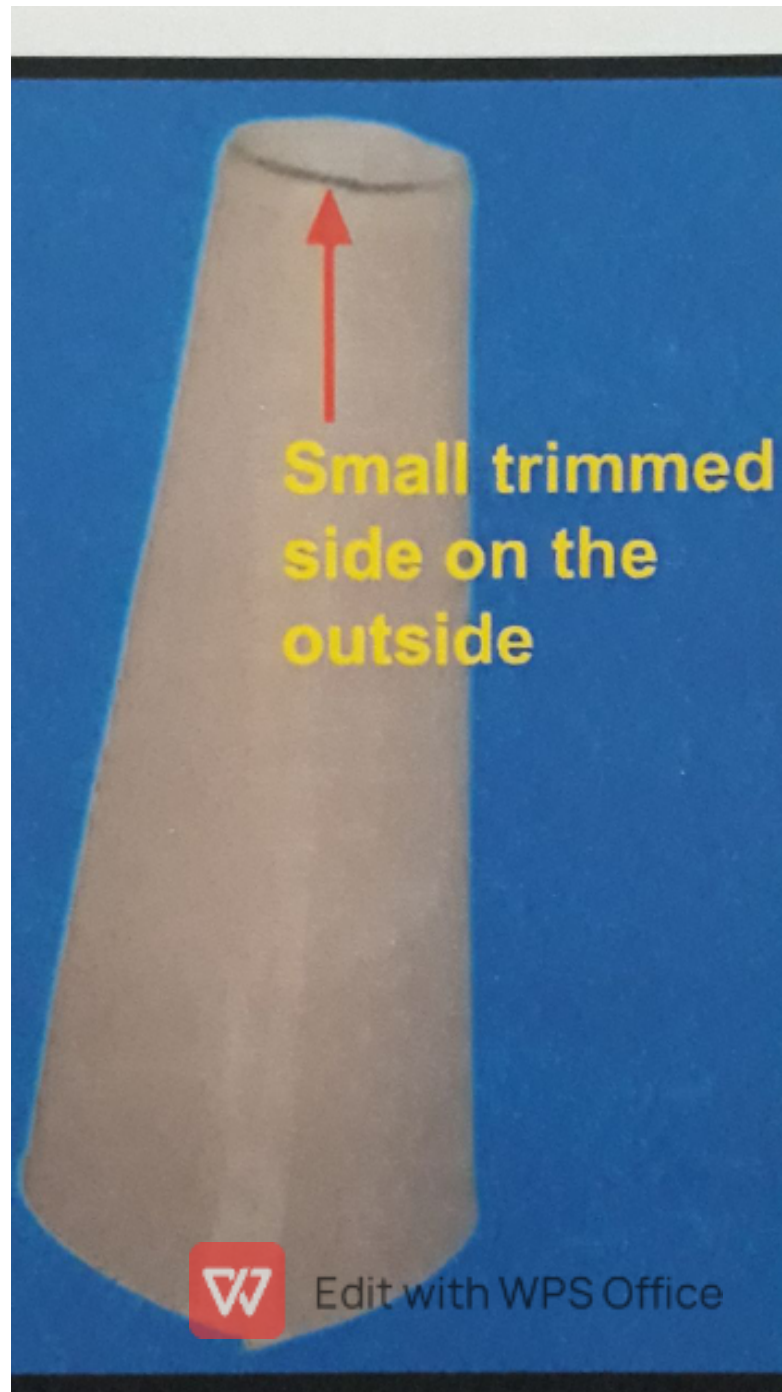
1 _ take measurement of the length and circumferences



2_ draw a trapezoid on the sheet according to the measurements taken



3_ cut the soft and skive the Lateral and the distal sides (1 cm)



4_ make the cap of the lateral modelling and skive sides (1 cm)



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Assembling T. T component

1 _ convex ankle

2_ tow concave cylinders

3_ convex disc

4_ cylindrical TT cup

5_ flat steel washer and countersunk head blot

6_ sach foot

7_ hexagonal head bolt and lock washer



Cosmetic steps

- 1 _polypropylene cosmetic manufacture
- 2 manufacture of cosmetic shell
- 3_ EVA cosmetic manufacture



Syme

A Syme amputation is an amputation done through the ankle joint. The foot is removed but the heel pad is saved so the patient can put weight on the leg without a prosthesis (artificial limb). The goals of a Syme amputation are to remove diseased tissue or a non-usable foot and create a functional, painless limb.





Assembling components of the syne

1 _Socket

2_foot

3_ One of the ways to suspension (depending on availability)



Cosmetic of prosthesis for syme

- 1 _ Light enough to wear comfortably
- 2_Ability to supply the equivalent of foot and ankle function
- 3_Lengthening of the limb to adjust for loss of the talus and os calcis
- 4_Provision of shock absorption
- 5_Suspension during swing phase



Partial foot

- 1_ Toes amputation
- 2_ Ray amputation
- 3_ Transmetatarsal amputation
- 4_ Tarsometatarsal disarticulation
- 5_ Midtarsal disarticulation



Assembling of the limb for partial foot

1_ Silicon foot (made of pure silicone paste)

1_ Conventional foot

Either from leather or plastic socket

With the completion of a local manufacturing foot



Casting of T. K amputation

1- The femur is complete and its end is intact

2 - The amputation surface is wide and the loading areas and body weight distribution are sufficiently

3- suspension by applying pressure above the end of the bulbar amputation

4- Wearing and removing the prosthesis is easy

5- The total loading of the body weight on the end of the prosthesis, in this case to ensure the control, balance and stability of the body





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Assembling T. K amputation

A_ Knee joint

1_4 bar axis is used polycentric, where there is more stability, safety and fluidity in the movement of walking.

2_4 bar with locking

used for the elderly and the less active.

3_ bar with out locking

for young and active people.

4_4 bar Hydraulic

gives more stability and smooth walking

B_ foot used lightweight





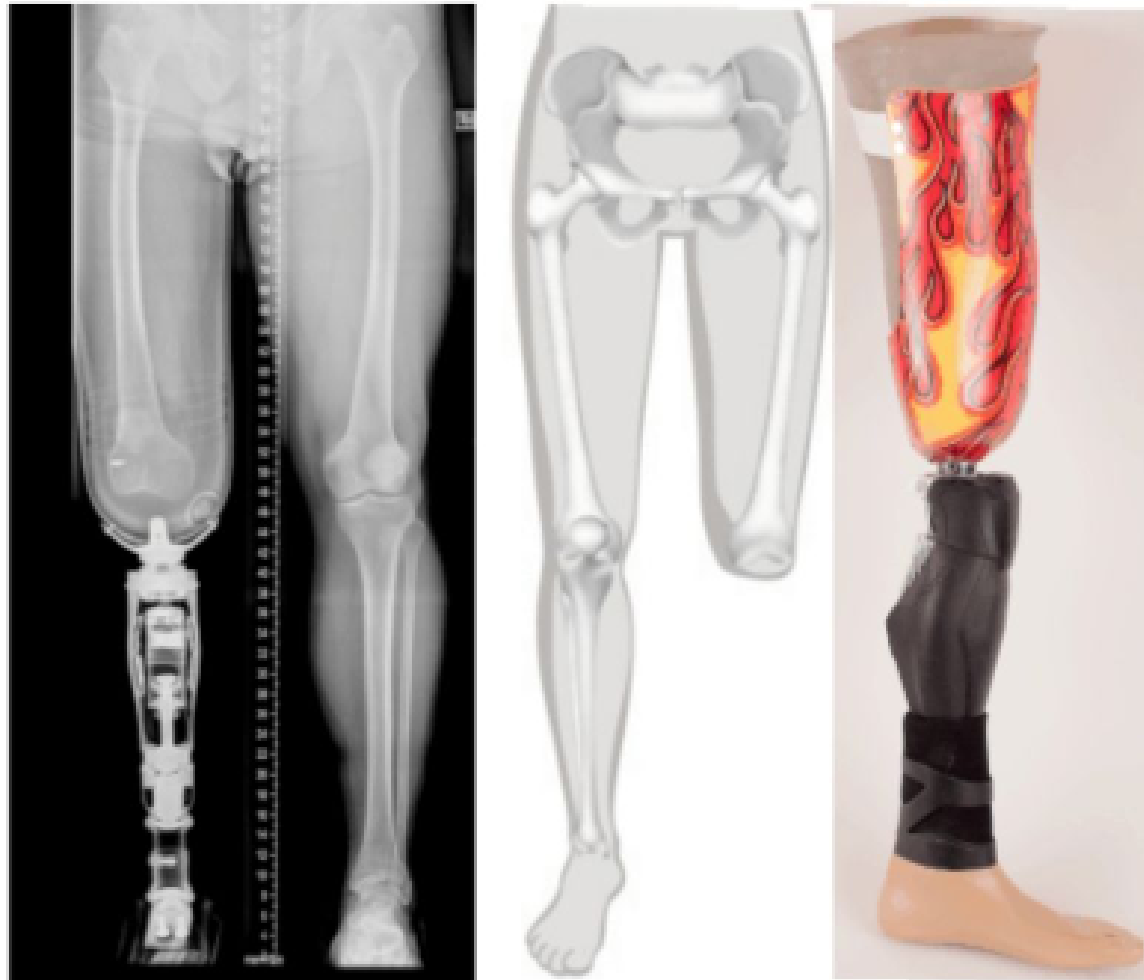
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T. K Amputation (knee disarticulation)

By ruqaya

T. K amputation

Also known as Knee Disarticulation a Through Knee Amputation involves an amputation that is performed between bone surfaces instead of cutting through the bone itself.



Advantage

- 1 _Good functioning means that most of the body weight is taken as if the person is kneeling which imposes less stress on the residual limb as a whole.
- 2_ The disarticulated knee takes 60% of the body weight and the long shaft of the femur can be used to take more of the weight
- 3_ Rehabilitation time is a lot quicker since the bone is not cut
- 4_ The muscle structure is left intact which allows for greater control

Disadvantage

- 1 _ this impacts the limb in that the knee sticks out further than the other knee
- 2 _ tall people find it difficult to in and out the car
- 3_ the residual limb may appear bulbous and the socket also responsible for this type appearance

T. K prosthesis components

1_ foot

2_ pylon

3_ knee joint

4_ socket



Assessment of T. K amputation

1 _Subjective Examination

A_ social history

It gives you information the patient's social life

Example :

1_where does he live?

2_what is his profession?

3_what is his hobby?

B_ Medical history

information you about the medical background of your patient

Ex:

1_what is the cause of the amputation?

2_Is it a congenital amputation?

3_when did it happen?

C_ Patient motivation and compliance

Hip opinion is very important in order to choose the most convenient prosthesis

Ex:

don't manufacture a mechanical prosthesis if the patient just intend to hide his handicap

2_ Objective Examination

1_ Inspection

the observation of the limb will provide many information like

A_ state of the skin

B_ blood circulation

the causes of the amputation

2_ Sensation

3_ Pain and condition the telerant pressure areas

4_ Range of motion

5_ Muscle testing

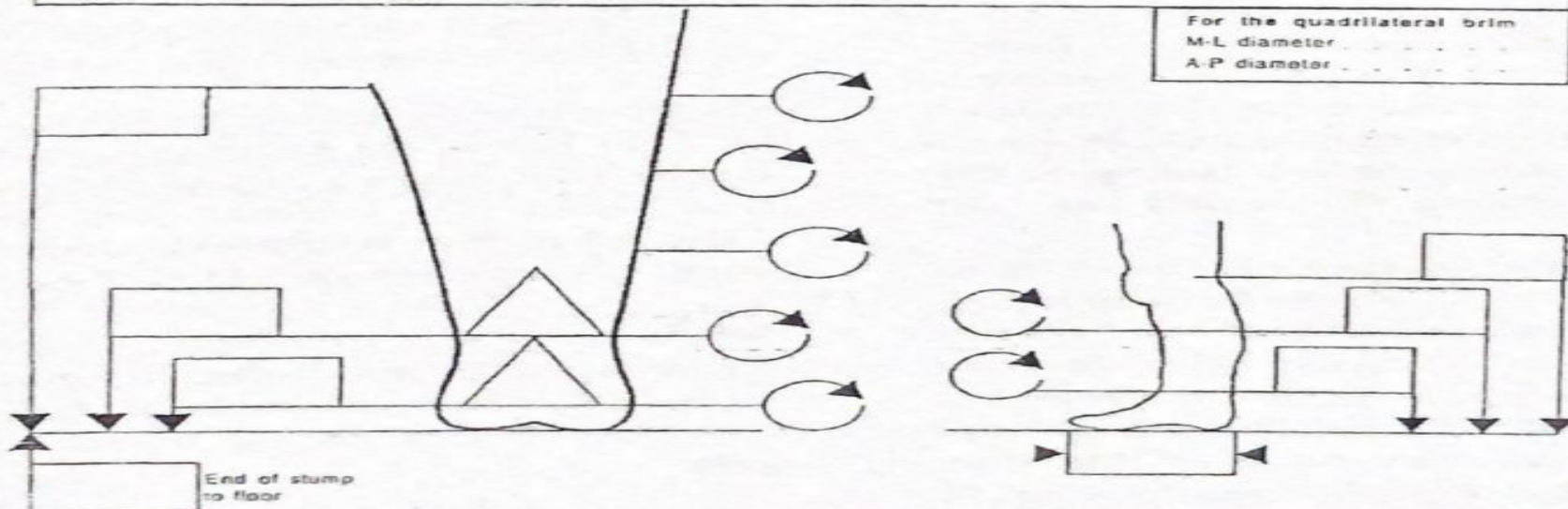
test strong muscle of the stump

6_ General assessment

there is any other problems associated

CSPO Knee Disarticulation Prosthetics Information

Date		Name			File#	
Side	L <input type="checkbox"/>	R <input type="checkbox"/>	Sex	M <input type="checkbox"/>	F <input type="checkbox"/>	Age
Reason for amputation						
Primary patient			Revision			
Yes <input type="checkbox"/>			Yes <input type="checkbox"/>			
No <input type="checkbox"/>			No <input type="checkbox"/>			
Occupation						
General health						
Upper limb condition						
General condition of stump						
Functional deficit						
Stump position Flexion Adduction Abduction						
Socket	Panel opening <input type="checkbox"/>		Push fit <input type="checkbox"/>		Ischial bearing <input type="checkbox"/>	
Knee joint	Disarticulation joint <input type="checkbox"/>		Transfemoral joint <input type="checkbox"/>		External joint <input type="checkbox"/>	
Foot type						
Shoes provided			Shoe size		Heel height	
Yes <input type="checkbox"/>			No <input type="checkbox"/>			
Special remarks						



CPO	Fitting date	Delivery date
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Alignment

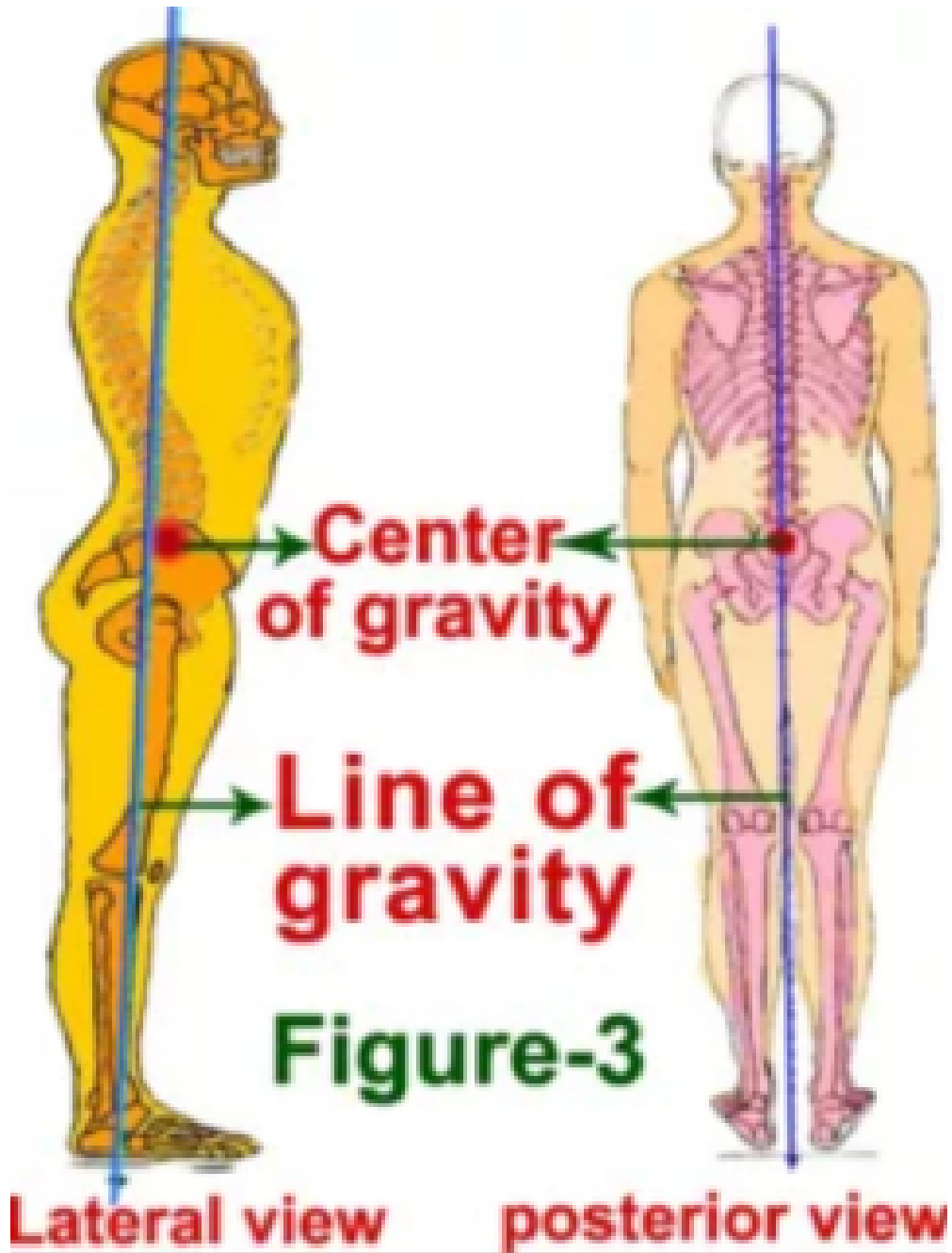
1 _ frontal vertical plan



2_ lateral vertical plan



3_ transverse plan (center of gravity)



Above knee amputation & Through knee amputation

By ruqaya

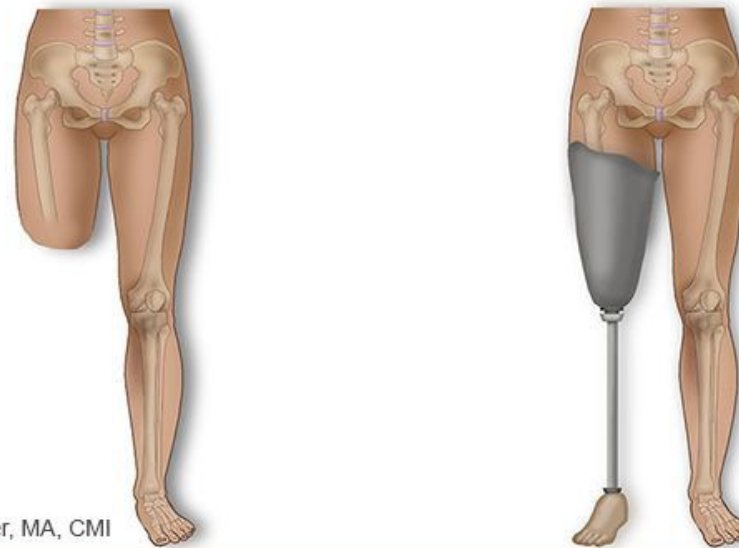


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An above knee (AK) or transfemoral (TF) prosthesis is custom made for a person who has had a AK or TF amputation.

Sometimes the prosthesis may consist of a sleeve or other harness, depending on the suspension system used for that patient.

Above-Knee Amputation



© Marie Dauenheimer, MA, CMI

Requirement before casting

- 1_ Measurements
- 2_ check up stump
- 3_ Sensitive area
- 4_ Check up general form



Function of Quadrilateral

The quadrilateral socket is widely recognized as a suitable design for transfemoral amputation.

The term quadrilateral refers to shape of socket when viewed in transverse plane

Quad = four Lateral = side

There are four sides to socket

- 1_ Medial
- 2_ Anterior
- 3_ Lateral
- 4_ Posterior



T. K amputation

T. K prosthesis components

1_ foot

2_ pylon

3_ knee joint

4_ socket



T. K amputation

T. F amputation

1_ can be donned in sitting

1_ donned in standing therefore requires balance and use of both hand

2_ lower risk of falling

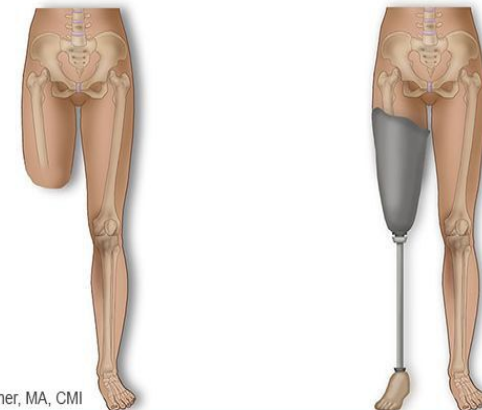
2_ higher risk of falling

3_ usually comfortable to sitting

3_ un comfortable if sitting for a long time due to high level of socket



Above-Knee Amputation



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Hip disarticulation

By ruqaya



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Hip. Disarticulation amputee

One of the rarest types of lower-extremity, above-knee amputations, hemipelvectomy surgery procedures involve a removal or resectioning of some part of the patient's pelvis (sometimes as much as half of it). This procedure is typically carried out for the treatment or elimination of the most dangerous conditions and diseases, the most prominent being localized tumors or cancers that have spread to the pelvis and have not been responsive to other forms of treatment such as radiation therapy or chemotherapy.





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Hemi pelvic tomy cast

Hemi pelvic tomy cast

1 _With the HD and HP prosthesis these principles are followed. Briefly, the amputee dons a stockinet which fits snugly and which the prosthetist can mark with certain critical lines and features such as the iliac crests, the ischium, a vertical line in the front and on the side of the pelvis.

Measurements of certain key distances such as that from iliac crest to ischium are made carefully and recorded. A plaster cast is then wrapped over the marked stockinet.





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2_The plaster is wrapped snugly around the pelvis. It is molded around the ischium to provide stability and pressure relief. It is cinched tight just above the iliac crests to give suspension



3_Plaster is wrapped across pelvis with band under ischium which is molded to fit around ischium to provide a pocket to protect



4_plaster cast is cut off the amputee, reassembled and poured full of plaster to create a positive model of the pelvic region.



5_View of inside of completed socket. Outer, more rigid frame is of polypropylene with inner copolymer socket.



Learn with WJ's Choice



Hemi pelvic tomy modification

1_limit the sensitive area

2_ suspension at the waist area

3 _just the modification in the waist area

