

# Amputee Care in Acute Care Settings - Physiotherapy

## Site Applicability

PHC Acute Care

## Practice Level

Physiotherapy

## Guideline

### POD 1:

Usually on bed rest for 24 hours – check with surgeon; Deep breathing exercises (encouragement to cough as required)

Foot/ankle exercises for remaining limb

Liaise with OT to obtain wheelchair and cushion; PT/OT provide amp board and cushion for patients with BKA

### POD 2:

Dangle and transfer to wheelchair if appropriate. Depends on wound, co-morbidities and functional status prior to amputation

Bed exercises: (see [Appendix A](#) and [B](#) for Bed Exercises) Prevention of flexion contractures is important. A contracture of 20 degrees or greater (of the knee for a BKA or the hip for an AKA) will prevent the patient from being fitted with a prosthesis.

### POD 3 and on:

Continue to mobilize and progress exercises. PT intervention can include bed exercises, sitting balance, transfer training, standing ex / balance, hopping and stair negotiation. Safety awareness and positioning of stump, both in bed and in the chair, will be ongoing.

**Note:** Hopping is not recommended for all patients i.e. diabetics, peripheral vascular disease, foot deformities, etc., as it may cause trauma to the remaining foot and increases risk for complications. If the patient's home is not wheelchair accessible it may be necessary to teach hopping. In these cases patients need to be taught to completely offload their remaining leg, using their upper extremities in the parallel bars or with a gait aid.

Patients should always wear appropriate footwear when hopping.

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## Post-operative Edema Control

Although post-operative edema is present in all cases of BKAs and AKAs current practice at PHC is to leave the residual limb unwrapped with Surgifix (netting) to keep the dressing in place.

Surgeons/physicians may order tensor wrapping or shrinker socks to be applied as these, if done correctly, can result in better wound healing and volume control as well as decrease the time to fitting.

## Wrapping

Tensor wrapping of the stump may start on post op day 2 to 5; when the dressing is changed for the 1st time. It is important for the physio to inspect the incision and **discuss with the surgeon** if stump wrapping can be started. Wrapping is not appropriate if the incision is infected or if there is a large area of thick eschar.

Educating the patient on stump wrapping may begin during the first session. (Rehab Assistant may need to sew 2 to 4 4" tensor bandages together.) It is ideal if patient can learn to wrap and monitor their own residual limb (please see [Appendix F](#) Stump Wrapping). After wrapping for the 1st time the bandage should be checked after an hour to check that it is comfortable and not too tight or too loose.

During the day the wrapping should be redone every 4 hrs or sooner (if unraveling or too tight). It should stay on overnight but it is not unusual for it to unravel while the patient sleeps.

Note: If the wrapping is not being done correctly it is necessary to educate other team members (e.g. Nursing) regarding proper wrapping techniques and/or speak to the surgeon about using shrinker sock instead. Poor wrapping can result in compromised circulation, poor shaping and pressure ulcers.

## Shrinker Sock

Once the staples are removed, usually around 2 to 3 weeks post-op, the physio can **discuss with the surgeon** the appropriateness of shrinker socks. The incision may not be completely healed at this time i.e. steri-strips as well as scabs may be present. A simple dressing is used to cover these to prevent shearing (liaise with nursing).

Infrequently, a surgeon may prescribe the use of a shrinker before the staples are removed. Clarify which type they would prefer and always use a donning device (a plastic, rigid pipe). The most commonly used shrinkers are "Compressogrip" or "Juzo" which can be ordered through any prosthetist.

Again, a shrinker sock is worn overnight.

MSP covers two shrinker socks/person. Donning devices can be obtained from a prosthetist.

## Prosthetists

A list of prosthetists in Vancouver and surrounding communities is available (see [Appendix H](#)). The acute care physio can provide this list to the patient early during their stay so they can start interviewing. The

patient–prosthetist relationship is a life-long one so it is important for the patient to meet the prosthetists and choose someone they are comfortable with.

Location of the prosthetist's clinic is often an important factor in the selection.

Once chosen, the prosthetist can submit the application to Pharmacare and wait for the approval for funding for the prosthesis. This process can take several weeks.

### **Footwear**

This is a priority for diabetic amputees. Appropriate footwear is essential to prevent trauma to the remaining foot. If the patient does not have an appropriate shoe they can be advised to purchase a new one with the following characteristics: minimal seams on the inside, wide toe box, breathable construction and supportive.

### **Phantom Limb Sensation**

Phantom limb sensation is a feeling that the amputated limb is still present but it is not painful. It is important to talk to the patient early about this and to let them know it is not unusual.

### **Pain**

**Stump pain** can have several sources. Some surgeons may insert a stump catheter, for a maximum of 7 days, to deliver pain meds. If a patient complains of increased stump pain it may be because the catheter has moved and is out of position.

-Infection at site of incision

**Phantom limb pain** is pain in the missing arm or leg.

- The following techniques can be used in the management of **phantom pain or sensation**:

Ask the patient to imagine the phantom limb is still there and to try moving the painful area; for example, try moving their phantom toes.

- Mentally, relax the missing limb.
- Teach the patient mild general body exercise to increase circulation.
- Exercise the remaining part of the limb.
- Ask the patient to tighten the muscles in the limb, and then release them slowly.
- Put a tensor bandage or a shrinker sock on the limb.
- Change positions. If the patient is sitting, ask him/her to move around in the chair, or stand up to let the blood get down into the limb.
- Massage or tap the limb.
- Apply gentle compression with the hands.
- Some people find it helpful to do activities which take their minds off their pain. Things like puzzles, needlework, woodworking, reading, or other interests can be useful distractions.
- Liaise with the doctor to determine if there need to be medication changes.

**Discharge Planning**

Some patients, depending on age, function, co-morbidities, will go home directly from the hospital while others will be transferred to a rehab facility (HFH) for inpatient prosthetic fitting and rehab. Sometimes, a patient may be sent home to wait for the incision to heal and then be admitted for inpatient prosthetic fitting and rehab. If the patient is returning home, the physio may need to set-up a pre-discharge or a day of discharge home visit, and also arrange for community physio and/or OP physio. In Vancouver outpatient physio is available at GF Strong or HFH.

GF Strong has an Amputee Support group that meets the 3rd Tuesday of each month from 4:30 to 6:30pm in the Social Services Seminar.

Questions – please contact:

**BSR (PT)**

GF Strong Rehab Centre

Voice (604) 737-6282. #8931

Pager (604) 631-7946

**Rachel Tutte**

Holy Family Hospital

Voicemail (604) 321-2661 ext 22334

Compiled by: PT, SPH/MSJ/HFH; PT Site Leader, St. Paul's Hospital; PT, St. Pauls' Hospital; Research, Education and Practice Coordinator, Providence Healthcare

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[Appendix A](#): Above knee amputee bed exercises

[Appendix B](#): Below knee amputee bed exercises

[Appendix C](#): Positioning to avoid

[Appendix D](#): Preferred positioning

[Appendix E](#): Wheelchair transfers

[Appendix F](#): Stump bandaging

[Appendix G](#): Care and maintenance of stump bandages, troubleshooting

[Appendix H](#): BC Prosthetists

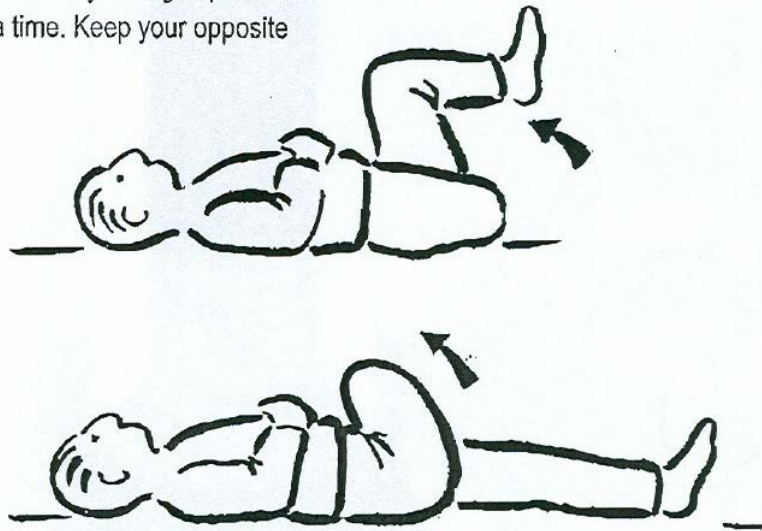
## Appendix A: Exercises for Above Knee Amputation

If you have an above knee amputation, it's important that you are able to stretch your stump out behind you as in exercise 6 and 7. Lie on your stomach twice a day for 10 minutes to help prevent joint stiffness at your hip.

### Exercise 1

1. Lie on your back and bend your legs up toward your chest, one at a time. Keep your opposite leg flat on the bed.

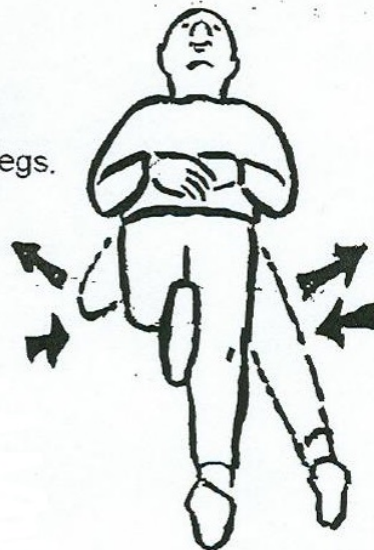
Repeat 20 times



### Exercise 2

1. Lie on your back and put a pillow between your legs.
2. Keep both legs flat on the bed.
3. Slide legs apart, hold for 5 seconds.
4. Squeeze legs together, hold for 5 seconds.

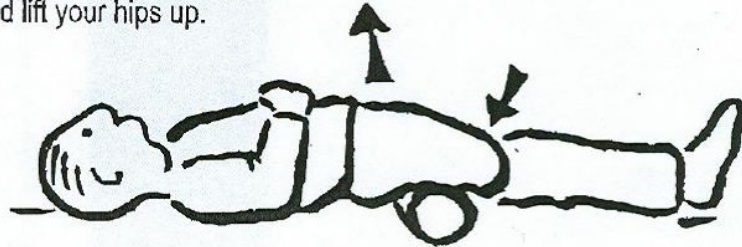
Repeat 20 times



### Exercise 3

1. Lie on your back with a roll under your thighs.
2. Push down on the roll and lift your hips up.

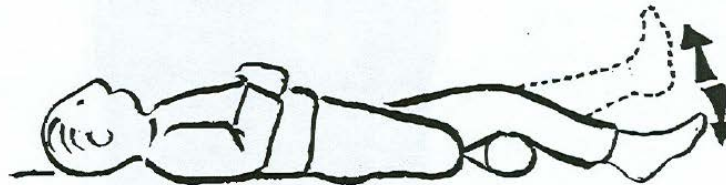
Repeat 20 times



### Exercise 4

1. Lie on your back with a roll under your good knee.
2. Raise your foot until your knee is straight.

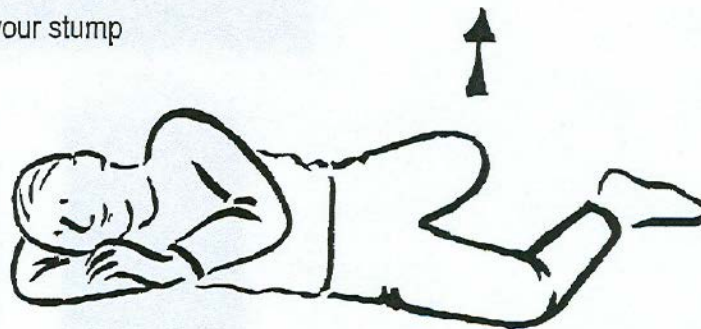
Repeat 20 times



### Exercise 5

1. Lie on your good side. Lift your stump up to the side.
2. Relax and lower your leg keeping it back in line with your body.

Repeat 20 times

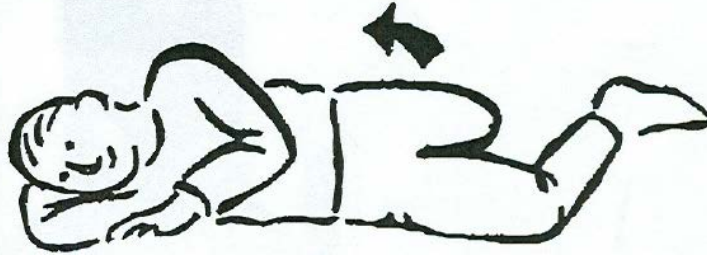




### Exercise 6

1. Lie on your good side. Bend your bottom leg.
2. Move your stump behind you, making sure you don't arch your back or move your body.
3. Hold for 5 seconds.

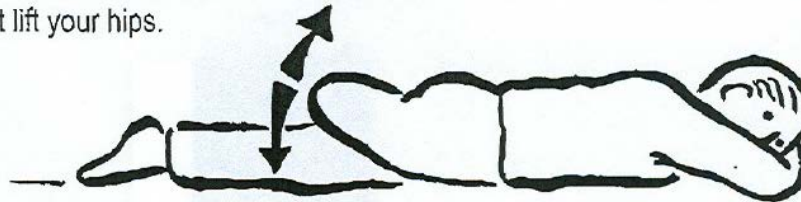
Repeat 20 times



### Exercise 7

1. Lie on your stomach and lift your stump up. Do not lift your hips.

Repeat 20 times



### Exercise 8

1. Sit on a chair with your hands beside you.
2. Push down through your arms and lift your hips up off the chair.

Repeat 20 times



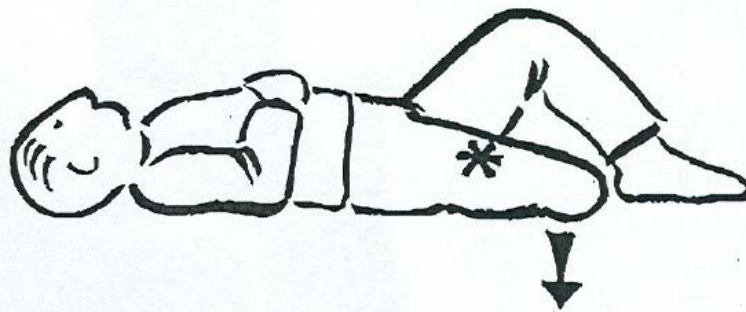
**Appendix B****Exercises for Below Knee Amputation**

If you have a below knee amputation, it's important to be able to fully straighten and bend your hip and knee. Lie on your stomach twice a day for 10 minutes to help prevent your joints from getting stiff. This is particularly important if you spend a lot of time sitting.

**Exercise 1**

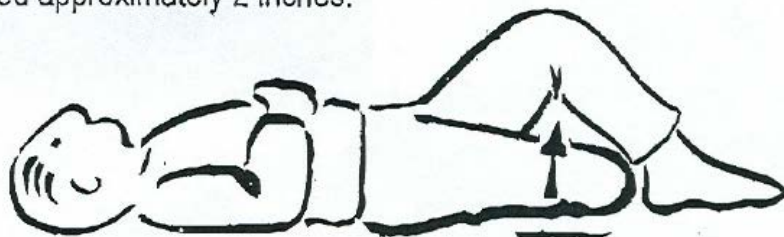
1. Lie on your back with your good leg bent and your stump straight.
2. Straighten the knee on the stump side as much as possible by pushing down into the bed and tightening the muscles on top of the thigh.
3. Hold for five seconds.

Repeat 20 times

**Exercise 2**

1. Lie on your back with your good leg bent and your stump straight.
2. Straighten the knee on the stump side as much as possible, then raise your leg off the bed approximately 2 inches.
3. Hold for five seconds.

Repeat 20 times

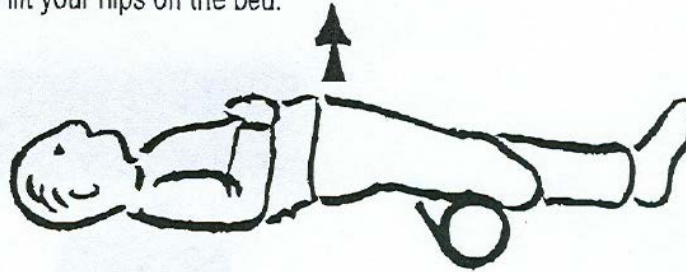




### Exercise 3

1. Lie flat with a 6 inch roll under your knees.
2. Push down into the roll and lift your hips off the bed.
3. Hold for 5 seconds.

Repeat 20 times



### Exercise 4

1. Lie flat with a 6 inch roll under your knees.
2. Straighten each knee, one at a time and hold for 5 seconds.

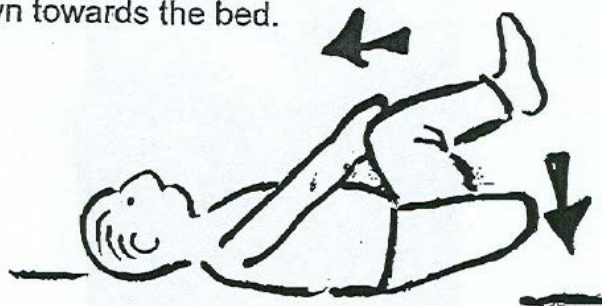
Repeat 20 times



### Exercise 5

1. Lie on your back.
2. Hold both legs up towards your chest.
3. Move your stump down towards the bed.
4. Hold for 30 seconds.

Repeat 10 times



### Exercise 6

1. Lie on your back and put a pillow between your legs.
2. Keep both legs flat on the bed.
3. Slide legs apart, hold for 5 seconds.
4. Squeeze legs together, hold for 5 seconds.

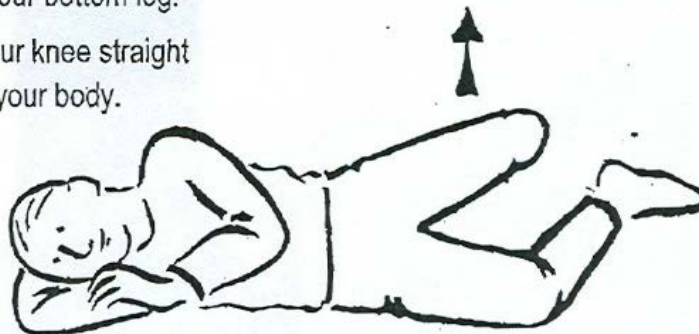
Repeat 20 times



### Exercise 7

1. Lie on your good side. Bend your bottom leg.
2. Lift your stump up, keeping your knee straight and your leg back in line with your body.
3. Hold for 5 seconds.

Repeat 20 times



### Exercise 8

1. Lie on your good side. Bend your bottom leg.
2. Move your stump behind you, making sure you don't arch your back or move your body.
3. Hold for 5 seconds.

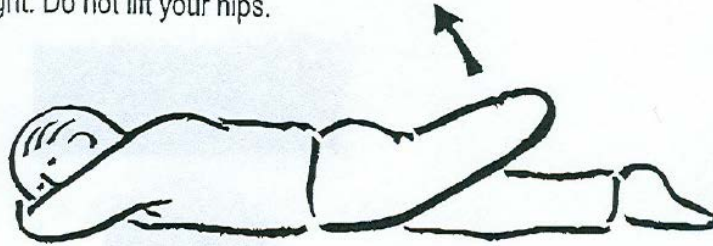
Repeat 20 times



### Exercise 9

1. Lie on your stomach.
2. Lift each leg, one at a time, off the bed, keeping your knee straight. Do not lift your hips.
3. Hold for 5 seconds.

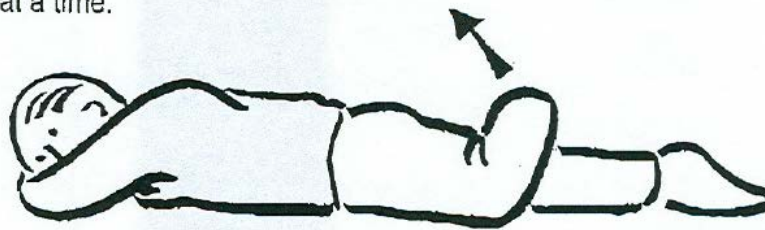
Repeat 20 times



### Exercise 10

1. Lie on your stomach.
2. Bend each knee, one at a time.

Repeat 20 times



## Exercise 11

1. Sit on a firm chair with your hands beside you.
2. Push down through your arms and lift your hips off the chair.

Repeat 20 times



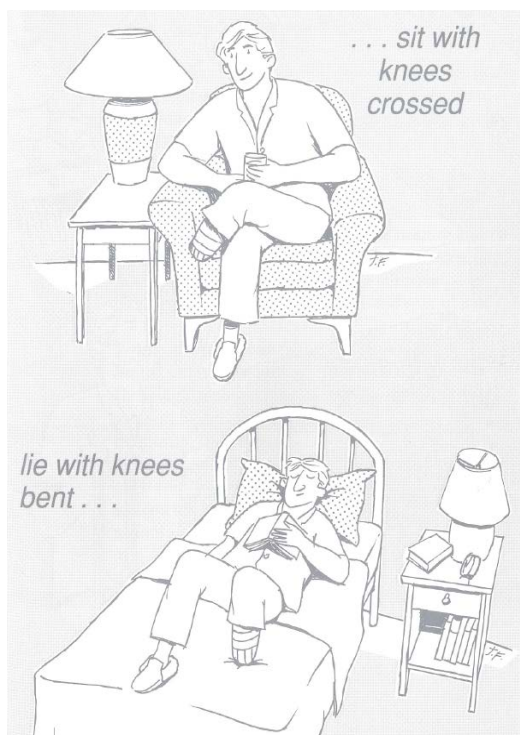
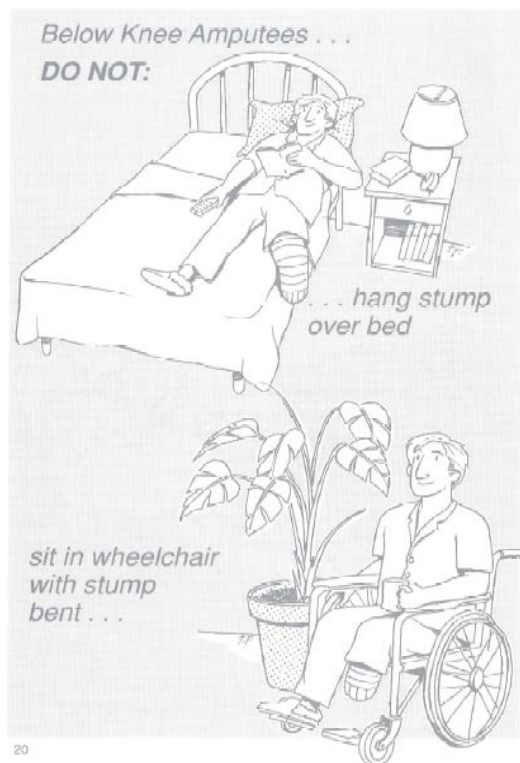
**Appendix C**

**Positions to Avoid**

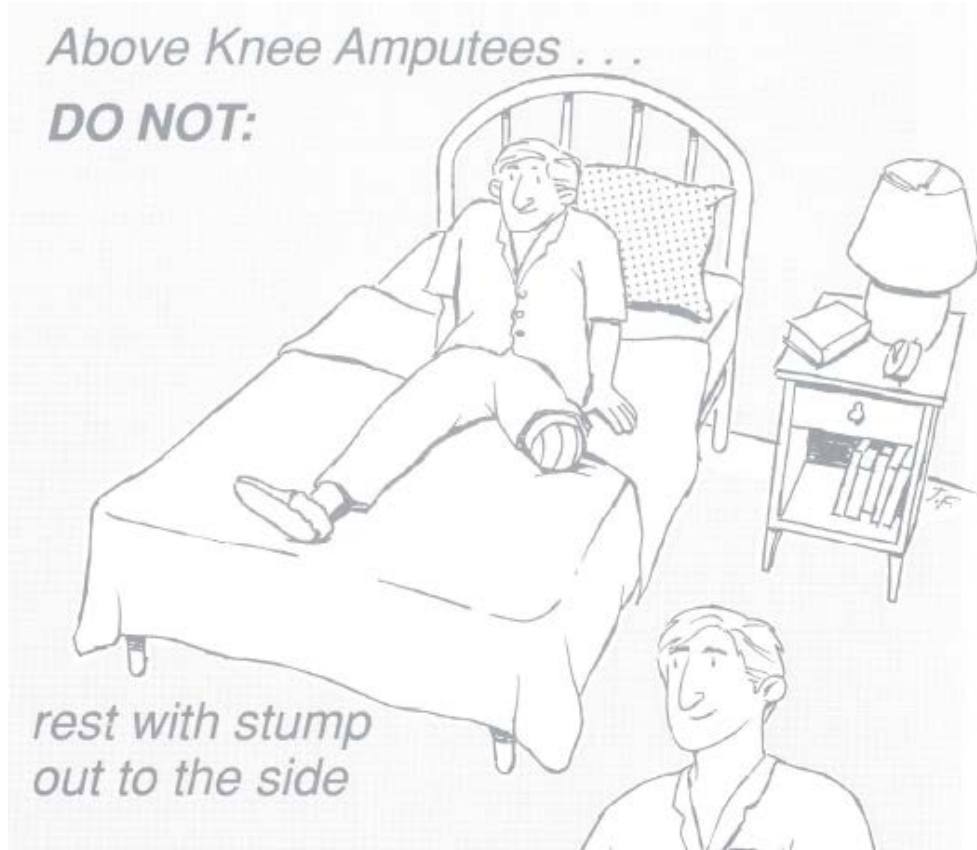


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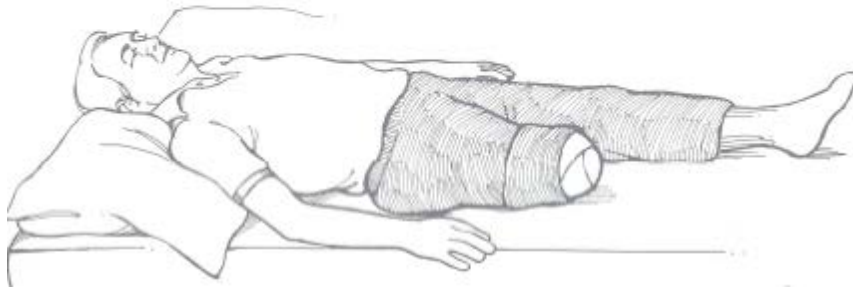


## Appendix D

## Preferable Positioning

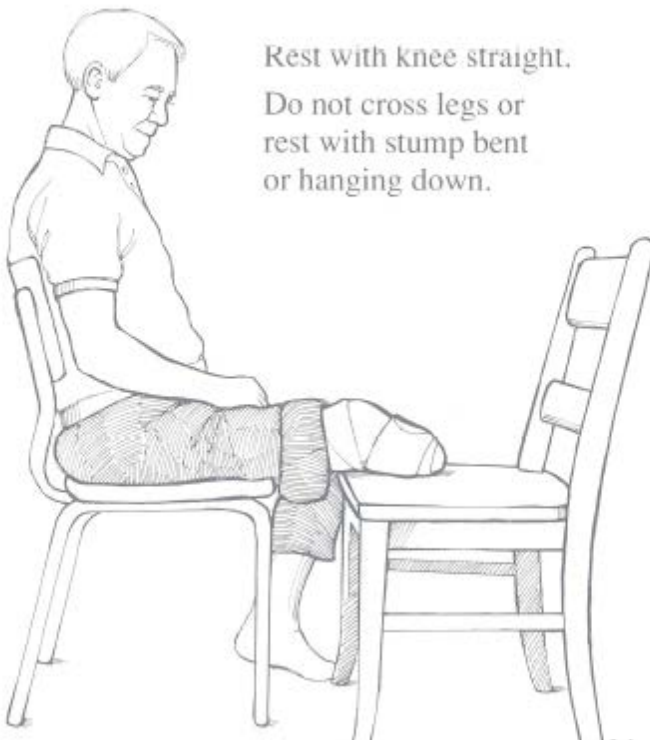
### Above Knee Positioning

Rest with hip (as below) not bent forward  
or out to the side.



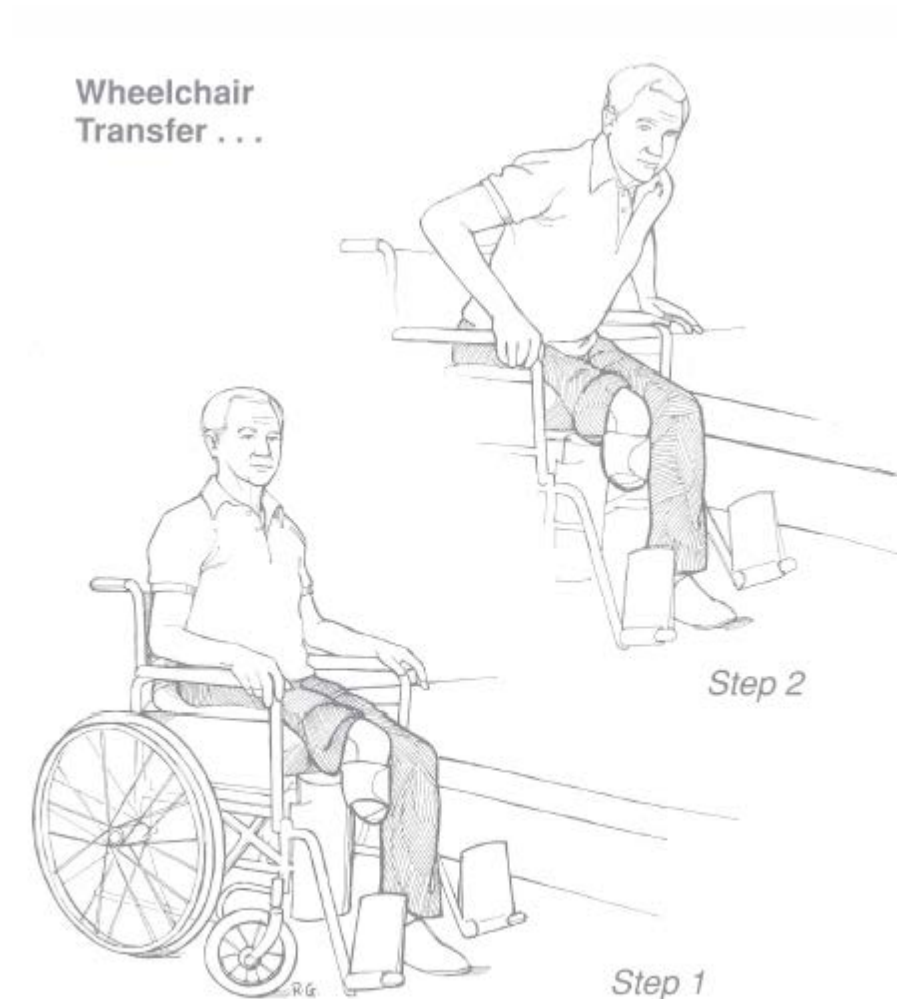
### Below Knee Positioning

Rest with knee straight.  
Do not cross legs or  
rest with stump bent  
or hanging down.



## Appendix E

## Wheelchair transfers

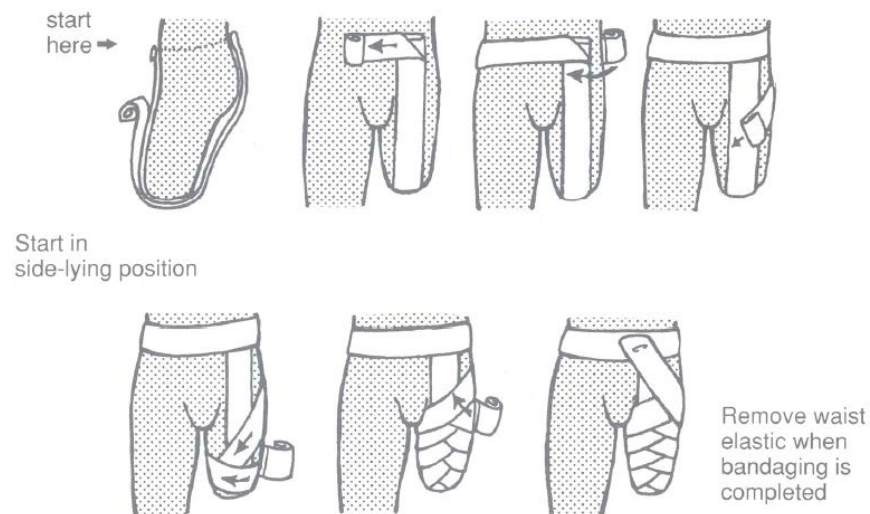


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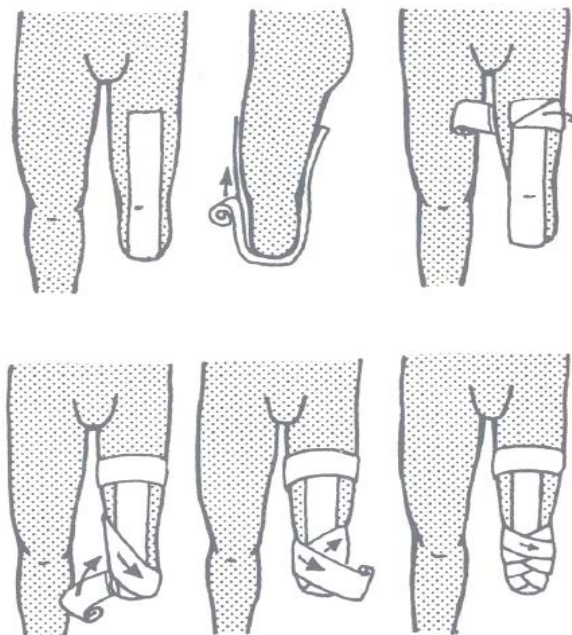
## Appendix F

## Stump Bandaging

### Above Knee Bandaging . . .



### Below Knee Bandaging . . .





## **Appendix G: Care and Maintenance**

### **Bandages**

- Use a clean bandage daily
- Wash used bandages in lukewarm water and mild soap (e.g. Ivory)  
Rinse thoroughly, remaining soap can irritate skin  
Dry flat

### **Stump socks**

- Use clean sock daily
- Follow manufacturer's instructions for care:  
Generally stump socks should be washed in cool water with mild soap, rinsed well and dried flat

### **Stump**

- Wash thoroughly daily
- Wet skin thoroughly, use a mild soap, carefully wash in any skin folds  
Rinse all soap off
- Dry thoroughly by patting not rubbing
- Examine stump daily, use mirror. Report any persistent skin irritation to your doctor

### **Leg**

- If you have any circulatory problems, avoid skin damage by:
  - A) Injury
  - B) Extremes of temperature; e.g. bath water, sunlight, space heaters, heating pads
- Wear a properly fitted shoe with a clean wool sock with no elastic at the top
- Keep toenails well-trimmed. It is recommended you have a podiatrist do your foot care
- Inspect your skin and toes daily. Have someone else do this if vision is a problem. Report any changes to your doctor

## **Problems and solutions**

### **Uncomfortable bandage**

- Remove and reapply

### **Swollen stump**

- Bandage correctly with tensor. Elevate stump

### **Loose prosthesis**

- Add stump socks
- Report to your doctor in the amputee clinic

### **Stump pain**

- Report to your doctor in the amputee clinic

### **Skin breakdown**

- See your doctor
- Do not wear your prosthesis, and resume bandaging until assessed in the amputee clinic
- Check your skin on your stump frequently
- Have podiatrist do your foot care

### **Changing shoes**

- Heel height must be the same as previous shoes when wearing prosthesis

**Appendix H****Vancouver Lower Mainland Prosthetists**

<b>Vancouver Prosthetics and Orthotics</b> 124 W. 8 <sup>th</sup> Avenue, Vancouver Prosthetists/orthotists: Ben Speicher, Randy Kramer	604 877.1700
<b>Bionics Prosthetics and Orthotic Services Inc.</b> 118-1087 East Kent Avenue, Vancouver Prosthetist: Deanna Hines	604 322.1066
<b>Pentlands Prosthetics and Orthotics</b> 262 3 <sup>rd</sup> Avenue (at Alberta), Vancouver Unit 8-13665 96 <sup>th</sup> Ave Surrey 105-45863 Yale Road Chilliwack Prosthetists: Ricky Chu, Dana Rousseau, Jesse Spellen Orthotists: Eric Ng (Vanc & Surrey), Gurpreet Parmar (Chilliwack)	604 324.4011 604 588.5950 604 792.2929
<b>Fraser Valley Prosthetics</b> 2291 W. Railway Avenue Abbotsford 108- 19705 56 <sup>th</sup> Avenue, Langley Prosthetist: Louis Janze	604 859.9695 604 530.1950 1-800-666.6545
<b>Lindsey Prosthetics and Orthotics</b> 9711 137 <sup>th</sup> Street, Surrey Prosthetist: Darcy James	604 951.4161
<b>John Barber Prosthetics Clinic Inc</b> 540 S.E Marine Drive, Vancouver Prosthetists: Lorne Winder, David Moe	604 321.1115
<b>Russell Prosthetics Ltd.</b> 101-455 E. Columbia St New Westminster Prosthetist: Scott Hedlund	604 520.3777
<b>Orthmed Technology Inc.</b> 6-13025 84 <sup>th</sup> Avenue Surrey Prosthetist Terry bloom, Wassim Akhtar	604 592.6082
<b>Award Prosthetics</b> 112-3823 Henning Drive, North Burnaby Prosthetist: Tony van der Waarde	604 298 0236
<b>Forward Motion Prosthetics</b> Suite 2016 20641 Logan Avenue Langley 220-11830 223 <sup>rd</sup> Avenue, Maple Ridge Prosthetist Scott Pearen	604 999.2145

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