# Prosthetics Guide

## New Amputee

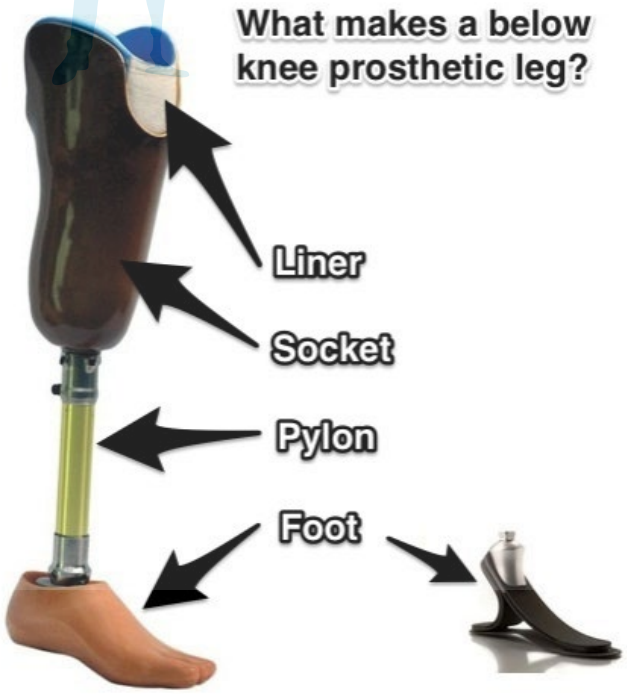
# What Makes A Prosthesis?

- Socket
  - The socket connects your residual limb to the prosthesis.
- Liner
  - The liner aids in suspending the socket from the residual limb and acts as a protective barrier between your skin and the socket.
- Prosthetic Knee (Above Knee amputee only)
- Adapters
  - Any prosthetic component that links the main components such as the liner, knee and foot together, and can vary from components such as a tube clamp, pylon to an expulsion valve.
- Foot
- Cosmetic Cover (optional)

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**Above Knee Prosthesis**



# SHRINKER FITTING

**One of the first steps in your journey is to be fit with a shrinker. Shrinkers are used to reduce, prevent or control swelling in your amputated limb. It is designed to fit snugly and apply pressure to the soft tissues of the residual limb. Shrinkers come in many different sizes based on the amputation level. A member of Befitting You will measure and fit you with the proper size once we receive clearance from your surgeon.**

**You will typically wear the shrinker 24/7, except when bathing.**

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# What Is A Shrinker?

Shrinkers are often elastic, nylon-like socks that cover the residual limb helping to control swelling, promote healing and assist in reshaping the limb

Commonly the patient is fit with a shrinker once the sutures/staples are removed

Numerous studies have supported the benefits of the application of gradual compression garments to reduce phantom limb pains, promote wound healing post operatively, and the reduction of swelling and scar tissue.

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# SURGEON CLEARANCE

**When your surgeon feels your limb is healed and ready to bear weight through a prosthetic device, they will give us clearance to begin the prosthetic evaluation and fitting process.**

**Healing times vary depending on many factors: amputation level, skin integrity and comorbidities.**

**"I'm ready to begin but my doctor is saying not yet. Can we start and just go slow?"**

*It is VERY important to not rush this step. Weight bearing too soon through your residual limb can lead to complications that will only further delay the prosthetic process.*

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# INITIAL EVALUATION

**During this appointment, you and one of our clinicians will sit down and discuss your health history, lifestyle and goals to get an overall "picture" of you and your functional needs. A lot of questions will be asked and the more information you can provide, the better. A functional test will also be performed which takes you through a variety of tasks. These tasks help the clinician indicate your current and potential K level of mobility.**



**Level 0:** Does not have the ability or potential to ambulate or transfer safely with or without assistance and a prosthesis does not enhance their quality of life or mobility
**Level 1:** Has the ability or potential to use a prosthesis for transfers or ambulation on level surfaces at fixed cadence. Typical of the limited and unlimited household ambulator.
**Level 2:** Has the ability or potential for ambulation with the ability to traverse low level environmental barriers such as curbs, stairs, or uneven surfaces. Typical of the limited community ambulator.
**Level 3:** Has the ability or potential for ambulation with variable cadence. Typical of the community ambulator who has the ability to traverse most environmental barriers and may have vocational, therapeutic, or exercise activity that demands prosthetic utilization beyond simple locomotion.
**Level 4:** Has the ability or potential for prosthetic ambulation that exceeds basic ambulation skills, exhibiting high impact, stress, or energy levels. Typical of the prosthetic demands of the child, active adult, or athlete.

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# INSURANCE AUTHORIZATION

**Once we have all the documentation, we will initiate authorization with your insurance company, if required. Please be patient. Insurance companies can take on average 2 weeks (and in some cases more) to reply with either an approval or denial for your prosthesis. We will communicate with you once we receive a response.**



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# SCANNING/CASTING APPOINTMENT

**After the initial evaluation and depending on what type of device your clinician has decided is best for you, we will schedule you for a scanning/casting appointment.**

**A clinician will either scan or cast your residual limb to capture an accurate shape so a test socket can be fabricated specifically to you.**

**Measurements will also be taken of your limb to ensure accuracy of the scan/cast.**

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# DIAGNOSTIC SOCKET FITTINGS

**About 2 weeks after the scanning/casting appointment, you will be fit with your first diagnostic socket. This will be a clear, prototype version of your prosthesis that will allow your prosthetist to see any areas of pressure you may have in the socket and make adjustments.**



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**Be sure to bring a matching pair of shoes so your prosthetist can dial in the height.**

*It typically takes several appointments and diagnostic sockets to obtain an optimal fit.*

**If you would like to personalize your socket, be sure to bring in the fabric or a t-shirt to the last diagnostic appointment.**

# DELIVERY

Once everything is comfortable in the diagnostic socket, we will proceed to the definitive fabrication. This takes approximately 2-3 weeks for the lab to complete.

At your delivery appointment, your prosthetist will fine tune the fit and ensure that everything is comfortable and walking appropriately.

You may be instructed not to wear your prosthesis until you begin Physical Therapy. This is for you own safety as you will need training to learn how to use and walk in your new prosthesis successfully and SAFELY.

Your Therapist may even hold the prosthesis until they have determined you can use it safely. While the wait can be frustrating, remember that everyone involved in your care wants the best outcome possible.

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# PREPARATORY PROSTHESIS

## Why receive a preparatory prosthesis?

A temporary/preparatory prosthesis is fit about 4-8 weeks after the staple removal and the suture line is healed. This prosthesis will help you:

Get accustomed to putting on and taking off.
Get accustomed to the new pressures and forces of prosthetic use
Learn to walk on a prosthesis

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# PREPARATORY PROSTHESIS Q&A

**How long will I have my preparatory prosthesis?**

It is commonly worn for 3-6 months, but this estimate can vary widely based on other factors.

**Will I be seen by my prosthetist after I receive my preparatory?**

Yes, you will have several follow up visits to evaluate and adjust the fit. You will also walk and any necessary alignment changes will be made to optimize how you walk. Initially, you may be seen every couple of weeks. After the first two months, the follow up appointments are less stringent, and are usually on an as needed basis determined by you and your prosthetist.

**Who will be teaching me to walk again?**

Your prosthetist will be the one to get you up and walking but in order to not develop any gait deviations, it is very important that you find a physical therapist.

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# PHYSICAL THERAPY

**Commonly, your physician will decide whether your physical therapist should be on an inpatient or outpatient basis.**

**Your physical therapist will work with you on safety and gait training (walking) with your new leg. You will learn how to walk safely and efficiently with either an assistive device or without. Commonly, you will start to re-learn to walk with some form of assistive device such as a walker or cane.**

**Your physical therapist will train you on gait patterns as well as how to go up and down stairs along with other every day challenges that may occur.**

**You also will be given different exercises that can be accomplished at home**



# DEFINITIVE PROSTHESIS

Receiving your definitive prosthesis is a slightly longer process compared to when you were given your preparatory prosthesis. The definitive prosthesis requires additional appointments.

Several measurements and an impression of your residual limb will be taken in preparation for a check socket. This process
normally takes 1-2 weeks.

Once your check socket is ready, you will see your prosthetist
again so that adjustments can be made to the fit and alignment.

Depending on the fit and comfort level, your prosthetist may allow you to take the socket home for a week for further evaluation.

Once you both are in agreement with the comfort, the definitive socket will be fabricated. This process takes about 1-2 weeks.
When the definitive leg arrives, you will be scheduled for your next appointment.



# Prosthetic Options: Suspension

There are multiple different types of suspension.

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- Lock & Pin
- Vacuum Seal-in
- Sleeve Supracondylar Strap
- Hinges
- Elevated



# What Is Lock & Pin Suspension?
# What is KISS Lanyard System?

The liner has a pin or a lanyard strap connected on the end that is used to attach the liner to the bottom of the socket. The pin system locks into the bottom of the prosthetic socket and is released by pressing a button. The lanyard is thread through the bottom of the socket and then goes through a D ring and is secured with Velcro.

## Benefits

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Easy to don/doff
Easy to accommodate for volume Fluctuations Flexible inner socket for Comfort
Secure suspension
Reliable
Can be donned in a seated position





# Donning Your Lock and Pin Liner

- Turn the liner completely inside out
- Roll (do not pull) the liner onto your residual limb
  - Make sure that the bottom of the liner is in contact with the end of your limb.
- Add socks as necessary to ensure a snug fit.
  - Be they do not cover the pin
- Slide the socket onto your limb. You will hear "clicks". Once you hear a few clicks, you are safe to stand up to get clicked in the rest of the way
- To take off the prosthesis, press the release button on the side of the socket. This will disengage the pin. Be sure to hold the release button until the entire pin is disengaged.

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If you are having trouble "clicking" in, the pin may not be lining up correctly.

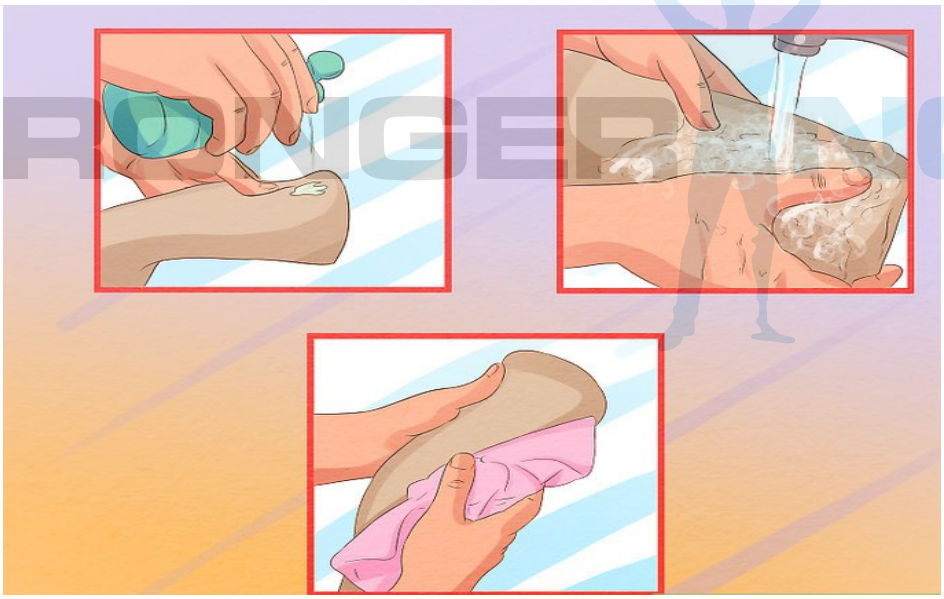
Try removing the liner and re-donning making the pin is pointing straight out

# Do I Clean My Liner?

**Remove the liner from your residual limb and turn it inside out.**
**With warm water, rinse off any debris that may have collected while you're wearing it.**
**Use a drop or two of soap and apply it thoroughly.**

- Gentle dishwashing soap or soap you use on your body is ideal. (unscented)

**Rub gently to remove any debris that has built up inside.**
**Run warm water over it and rinse well until the soap residue is gone.**
**With a non-lint towel, pat the gel or silicone side of your liner dry. Then turn right side in so the gel or silicone is on the inside again**



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*You can also wash the outside of the liner. Make sure you rinse the outside just as well as the inside. (You don't want soap residue build up on the fabric part of your liner.)*

**Use a liner drying rack (or an amputee life hack you've found to dry your liners on) and let it air dry. Do not dry your liner with the gel or silicone material exposed to the air.**

# Liner and Socket Hygiene

Always store your liner right-side out. The gel should be on the inside and the fabric side facing out. This will prevent the gel from cracking and also prevent build up of dust or hair

Inspect the inside of your liner for tears, cracks or embedded objects before putting it on.

If found, please contact your prosthetist

For sensitive skin: apply a light coat of baby oil on the knee cap, behind the knee, or at the end of the tibia to reduce rubbing of the liner between your skin.

Periodically scrub your socket inside and out with warm soapy water and dry with a towel.

Report any cracks, chips or noises to your prosthetist.

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## What is Elevated Vacuum Suspension?

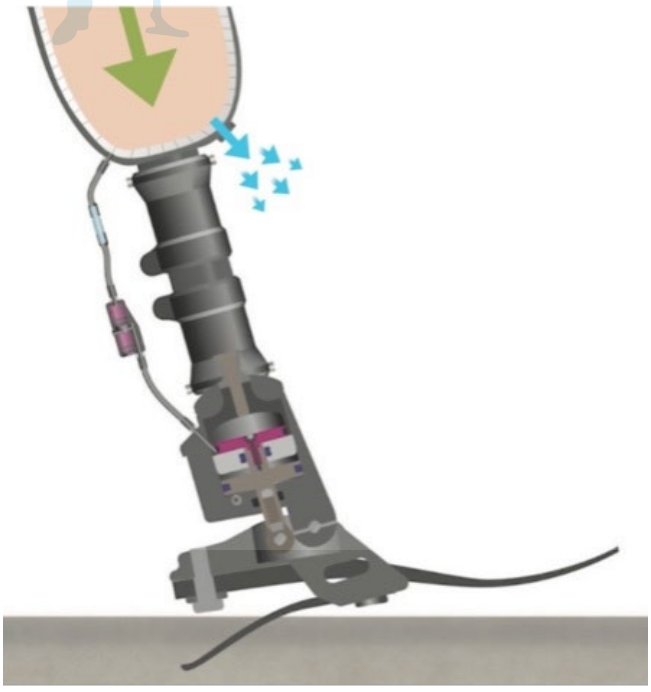
**An electric or mechanical pump is attached to the socket and provides a constant, monitored suction, pulling the liner and the patient's residual limb towards the inner socket walls.**

**The vacuum is drawing the extra air out of the socket, creating a negative pressure within the socket, which eliminates movement within the prosthesis.**

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**Benefits**

- Reduces fluid volume loss Aids with stability
- Relieves pressure points
- Preserves skin health



## What is Sleeve Suspension?

**A sleeve fits snugly over the socket and then extends onto the patient's thigh.**
**The sleeve is used to seal in the air in the socket and in that way creates suspension.**

**Primarily used with transtibial (below knee) sockets.**

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**Benefits**

Pistoning (movement of the leg within the socket) is reduced due to the airtight seal.

Sleeves are flexible and allows the knee to bend.



# All About Prosthetic Socks

- Generally, your limb will shrink as you wear your prosthesis. The primary reason for using prosthetic socks is to compensate for this volume loss and maintain the "snug fit" of your prosthetic limb.
- Socks come in varying thickness
    - 1, 3, & 5 ply are the most common types of Socks are available with specialized fibers for wicking perspiration or fighting odor causing bacteria.
- Many manufacturers now offer prosthetic socks impregnated with mineral oil gel to enhance skin preservation and provide cushion for your residual limb.

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## Prosthetic Sock Best Practices

- Don't pull your prosthetic socks too tight. Place the seam towards the back of your limb.
- For socks going over a pin, pay special attention and make sure the sock is away from the pin before locking the pin into the lock.
    - If the sock is wrapped around the pin, then doffing will be a challenge.

**Since the prosthesis does not shrink along with your leg, you must use socks to "fill up" the space left by the shrinkage. You will know when you need to add a ply of sock when you feel one of the following warning signs:**

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**When To Add Socks**

- You may feel the end of your limb hitting the bottom of the socket with redness upon doffing The prosthesis feels short
- There may be a red mark on your kneecap from the prosthesis (BK only)
- You may feel pressure/burning in the groin area (AK only)

# Sock Guide

## Warning Signs of Wearing TOO FEW Socks

### TRANSTIBIAL (BK) Amputee:

- Pressure on or below knee cap
- Pressure on the end of your limb
- Redness over bony area
- Gapping between the sides of the socket
- Feeling of movement or instability within the socket

### TRANSFEMORAL (AK) Amputee:

- Pressure on distal femur
- Feeling of walking on the end of your limb
- Gapping between sides of socket
- Discomfort or pinching in the groin area

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### BK or AK

Your socket spins or your limb or your foot rotates while walking

Height feels short on the prosthetic side

Sudden onset of back pain

**If adding sock(s) does not resolve the issues you are having, call your prosthetist for an adjustment.**

# Can I Get My Prosthetic Leg Wet?

Check with your prosthetist to see if your components are waterproof.

Many prosthetic components, such as feet and knees, are water-resistant, meaning that it's okay to be caught in a rainstorm or splash water on them without causing damage. Some components are entirely waterproof, meaning it's okay to completely submerge them in water of certain depth for a certain duration.

Showering with a waterproof prosthesis is a possibility, although most people do not choose to do this because it's necessary to clean the residual limb anyway.

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# Assistive Devices: Will I Need to Use a

## Walker or Cane?



It depends on your activity level prior. Were you using an assistive device before you lost your limb?

Some amputees find using an assistive device to be helpful in reaching certain goals.

The type of assistive device you use is your choice Chose a device that will help you live the life you want to live.

Many amputees have a wheelchair or pair of crutches that they use at least part of the time.

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# Going home with your prosthesis




**Congrats!!!! Today is an exciting day! Now you've learned all about your new limb and are ready to take it home! Please keep this booklet handy to refer to for Q&A. Also remember the following...**

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Please do not wear your prosthesis all day. Gradually increase the wear time by a few hours at a time. (Some redness is normal as long as it fades away within 20 -30 minutes).

If your system utilizes prosthetic socks, make sure you take socks with you on your daily outings

If something does not seem right and/or something is painful, **Contact your prosthetist!**

## Important Tips

Catch any issue early. Contact your prosthetist ASAP.

Know your limb: be able to recognize when something unusual offers. Mild redness is normal and should disappear after 20-30 minutes.

Remove prosthesis if you experience adverse effects like blisters, rashes or sores.

Tell your prosthetist of any malfunctions, failures or if a repair is needed to your device.

Follow up appointments are important and will occur frequently after initially receiving your prosthesis.

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Regularly scheduled follow up appointments are then suggested every 3-6 months to monitor your progress.



# Wearing Schedule

Your limb needs time to adjust to wearing the prosthesis. Follow these general wearing guidelines. Stop use if blistering or sores develop and contact your prosthetist for adjustments.

**First Week:** 1-2 hours in the AM, 1-2 hours in the PM **Second Week:** 4-8 hours a day (gradually increasing by 30 minutes per day)
**Third Day:** 10-12 hours a day, or as tolerated

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# EXERCISE TIPS

- An important goal before, and when you first receive your prosthesis, should be to improve or maintain your endurance and range of motion. Particularly, you should make sure to flex and extend the amputated limb frequently to avoid contractures which can hinder your ability to safely use a prosthesis.
flexibility

- Equally important is working to increase your cardiovascular fitness. As you become more proficient in the use of your prosthesis, one goal is to slowly increase both the frequency and distance you walk. This will help reduce the chance of developing secondary disabilities such as cardiovascular disease, high blood pressure, and obesity.

- Secondarily, exercise maximize and strengthen your remaining muscle mass. However, avoid exercises that place excessive strain on the amputated limb as these can lead to skin breakdown and other injuries

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## *EXERCISE TIPS*

**> Safety First: If it Hurts -STOP**

**> Proper Form over Speed**

**> Always keep your core tight**

**>Start Slowly! Increase the number of reps and sets as you get stronger.**