



AK Prosthetics: Definitions and Troubleshooting

Some common definitions:

1. **Trochanter**- this is the upper part of the femur. It is the bone that you feel on the side of your hip.
2. **Femur**- this is the only bone in the thigh.
3. **Ischial Tuberosity (IT)**- this is commonly referred to as the “seat bone.” You notice this bone when you sit on a hard surface such as a wooden bench. It is the lower part of the pelvis.
4. **Shrink**- a term used to refer to a residual limb that is decreasing in size. Shrinking of the muscles or soft tissue is especially common with a newly amputated limb.
5. **Suspension**- this refers to how a prosthesis is held onto your residual limb.
Some of the most common types of suspension are:
 - a. 3S - Silicone suction suspension
 - b. Straight suction
 - c. Partial suction + silesian belt
 - d. Hip joint, pelvic band and waist belt
 - e. Vacuum
6. **3S = Silicone Suction Suspension**- this refers to a type of prosthesis that uses a roll-on silicone sleeve with a **locking pin (plunger) or a pull strap** on the end to hold the prosthesis onto your limb. The **locking pin (plunger)** inserts into a locking mechanism called a *shuttle lock* that is in the end of the prosthetic socket. A pull strap would feed through a slot in the bottom of the socket and attach onto the outside of the socket.
7. **Straight Suction**- this refers to the prosthetic socket being in direct contact with the skin of the residual limb. There is a small valve at the end of the socket that allows air to escape. Because of this intimate fit and an absence of air, a vacuum effect results, and the prosthesis is held in place on the residual limb.
8. **Silesian Belt**- this is a lightweight cotton-webbing belt that wraps around the waist and attaches to the front and top of the prosthetic socket with an adjustable strap. It helps to suspend an AK prosthesis.
9. **Partial Suction + Silesian Belt**- there is a small valve at the bottom of the socket that allows air to escape. However, a prosthetic sock is used with this type of suspension and this allows a certain amount of air to always be in the socket. Because you do not have the strong vacuum effect that you have with *straight suction* suspension you need extra suspension. This is provided by the addition of a *Silesian belt*.
10. **Hip Joint, Pelvic Band and Waist Belt**- this refers to a joint (usually metal) that is attached to the side and top of the prosthetic socket. It is attached to a pelvic band, which is a metal band shaped to fit the waist on the amputated side. This is then attached to a leather belt that circles the

entire waist. This type of suspension is heavy and cumbersome and is rarely used. This may be used with an AK amputee who has weak hip musculature or has a very short residual limb.

11. **Piston**- if a prosthesis pistons, it is not held (suspended) properly in position on your leg. Your prosthesis should be held snugly to your limb and not pull away when you walk. If there is exaggerated motion between your limb and your prosthesis when you walk this is referred to as pistoning.
12. **Ply**- a term used to signify the thickness of a prosthetic sock. One ply is approximately the thickness of a thin cotton sock. You refer to a prosthetic socket fit in terms of ply. For example, "I am wearing 5 ply with my AK prosthesis"
13. **Flexion**- this refers to the position of the hip when it moves from a straight position to a ***bent position***. While sitting in a chair, your hip is in flexion. Flexion is the opposite of extension.
14. **Extension**- this refers to the hip being in a ***straight position***. When you stand up, your hip goes from flexion to extension. Extension is the opposite of flexion.
15. **Shuttle lock** (see 3S=silicone suction suspension)