

## Pre-Op Plan:

One very critical decision is where exactly to cut the tibia and fibula for this particular individual. Several factors must be taken into consideration when choosing where to cut the bone.

1. Historically, many surgeons recommended a tibial bone cut that was always one hands breadth distal to the tibial tubercle. This gives a tibial length of between 10 and 15 cm depending on the size of the surgeon's hand.
2. Recently it has been recognized that additional tibial length may have some value up to a certain level.
3. It is almost always recommended to avoid amputation in the distal 1/3 to 1/4 of the tibia, as there is very little muscular tissue for padding in the distal most portion of the lower limb.
4. Calves vary dramatically in there anterior to posterior diameter, so ideally the tibia would be divided at a point where the distal edge of the appropriate length posterior flap would occur at the junction of the soleus muscle and the Achilles tendon.
5. When the transtibial amputee is standing up, the distance between the ground and the end of the residual limb allows adequate space for the liner, socket, proximal connector, pylon, distal connector, and foot.
  1. 4 to 6 inches of space allows for the use of most standard prosthetic feet and a pin lock suspension system.
  2. 6 to 8 inches allows for the addition of a shock absorbing component to the above standard prosthetic system.
  3. 8 to 10 inches is required for the use of most integrated high-impact foot/pylon/shock absorbing systems.
6. Practically, the tibial bone cut is planned to keep one third to one half of the length of the tibia. The exactly location is based most commonly on the quality of the soft tissue envelope, the shape and size of the calf muscle, the overall height of the individual, and the location of scars, ulcerations or soft tissue defects.

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