



→ **Because each individual is different, osseointegration surgeries are modified to suit each individuals' needs, therefore it is very important to consult with your doctor and prosthetist before following any of the steps below. These general guidelines should help you prevent infections, maintain your residual limb, prepare for weight-bearing and ultimately regain your mobility.**

→ **After discharge from the hospital**

You do not need any dressing covering the remaining wound and staples, exposing the wound to sunshine is the best management.

Excess debris can be removed with a soft shaving brush or toothbrush. This should be done weekly on an ongoing basis. Any brushes used to clean the metal abutment should be replaced at least once per month if not more frequently.

Gauze dressing only need to be used on an ongoing basis if there are continued secretions from the residual limb site. This is best wrapped around the gold dual cone and secured with tape. That way the wounds stay uncovered and when you are upright any secretions will drain down into the gauze.

In the case of trans tibial amputees, it is not uncommon to have some nerve pain from time to time in the distal tip of the stump. Appropriate pain management is vital during this time. After 12 months this pain in most cases does settle.

This is a surgical intervention and will require a period of approximately 12 months for bone and wounds to heal.

→ **What rehabilitation is required after surgery?**

Rehabilitation can start 1 or 2 days after your surgery, unless otherwise indicated by your surgical team. This is done in two phases, followed by physiotherapy and a set of guidelines for long-term maintenance and care. This is determined by your doctor, physiotherapist or prosthetist and depends upon your body weight, health and physical aptitude.

→ **Phase 1 – Static Loading**

Loading on the abutment (metal part protruding from the skin) can usually be started at around 10 lbs, depending on your surgical team's instructions, and quickly increase to the target load. This is accomplished by resting the metal abutment (with protective rubber) onto a scale and applying pressure according to an individual prescribed loading protocol and timescale.

	Accelerated Progress	Standard Progress	Slower Progress
Start	Day One or Two Post-op	Day One or Two Post-op	Day One or Two Post-op
Increments	10 lbs every day	10 lbs every 2-3 days	10 lbs every week
Duration	20 minutes twice daily	20 minutes twice daily	20 minutes twice daily
Fitting	10-12 days post-op	20-30 days post-op	8-10 weeks post-op

→ See graphics on the next page for a visual reference of the axial loading protocol.



→ **STATIC AXIAL LOADING:** Unidirectional effort without variance to avoid tilting or rotation of abutment (implant).

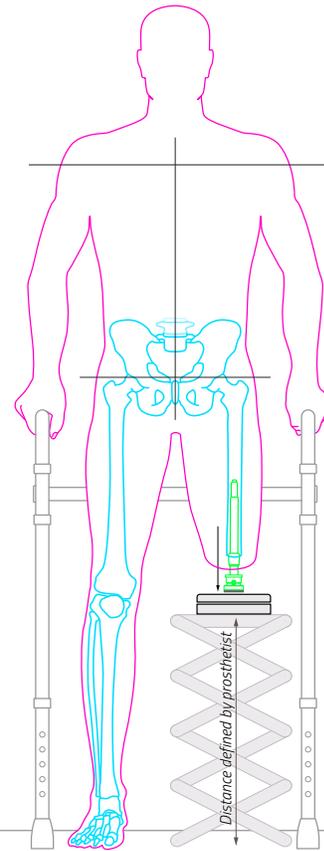
Understanding **static axial load** (or unidirectional weight-bearing) is very important to ensure proper healing and prepare for taking your first steps with a temporary prosthesis (Phase 2).

Unless otherwise indicated by your doctor weight-bearing should be applied straight down and increased gradually. Apply weight by pressing the abutment against a scale, to confirm the correct weight-bearing value.

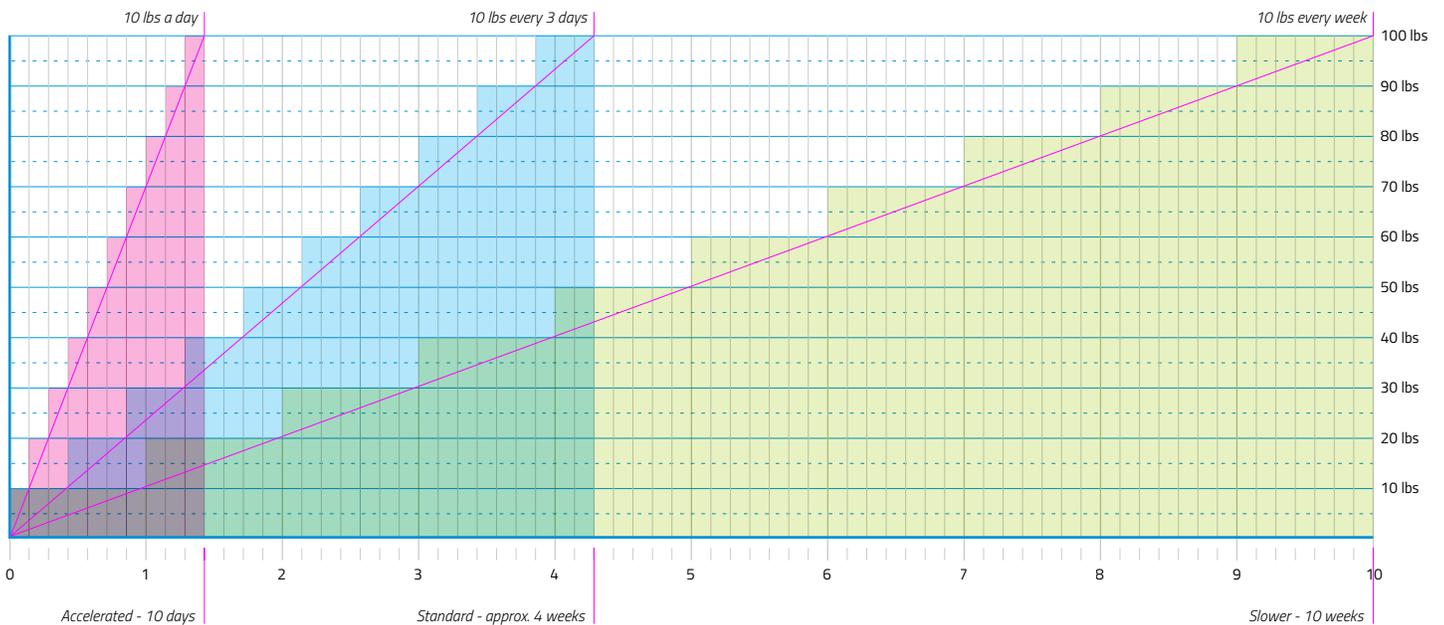
Your surgeon should prescribe an individualized loading protocol at the time of surgery, if not consult your surgical team or prosthetist.

BE ADVISED:

- Always be supported by walker or parallel bars (not crutches).
- Any feeling of pain or discomfort should be monitored and discussed with your doctor immediately.
- If your doctor prescribed different steps from the ones outlined herein, always follow your doctor's directions.



→ Phase 1 is completed when you reach 50% of your body weight OR 100 lbs, whichever target comes first.





→ Phase 2 - Training prosthesis

At the end of Phase 1 you will be fitted by our prosthetist and commence *assisted walking*.

For the first 6 weeks after completing the weight-bearing phase, walking is unlimited with two crutches and guided by pain levels. Please rest if needed as this maybe counterproductive to your ongoing rehabilitation regime.

Strengthening, stretching and balance exercises are ongoing as prescribed by your physiotherapist. Hip Abductors are likely to require strengthening. Many patients do suffer with hip pain after osseointegration as these muscles have not been used for some time.

→ *At any time if you do feel sore in your hip or knee please reduce your activity levels until the discomfort subsides then slowly build up again.*

→ As mentioned above, you can walk assisted by crutches as much as you like, with no limits, as long as you're comfortable and pain-free. However it is important to follow these steps within the first months to avoid upsetting the implant sight.

Your prosthetist may fit a training 'lighter and less dynamic' prosthesis to begin with. After a couple of weeks of gait training, you will then be fitted with your definitive prosthesis.

When walking with a prosthesis remember the following:

- Even if crutches seem unnecessary, use them. Later you can use a cane.
- Avoid rotating your limb while the prosthetic foot is touching the ground.
- Be extra careful when going up or down inclines and ramps.
- Avoid sudden changes in speed and direction when moving.
- Be extra careful when sitting down and getting up from sitting.

Once fitted with your definitive prosthetic leg the following will occur:

- Final alignment to check A-P position of knee joint center.
- Dynamic alignment and gait training.
- Knee rotation.
- Hydraulic/Myoelectric settings.
- Plantar/dorsiflexion analysis and settings.
- Expect frequent reviews.

During this phase you will also learn "fail prevention:"

- Safe use of prosthesis during turning and sit to stand.
- Prosthetic foot always remains underneath the hip NOT abducted as if it were a strut.
- After six weeks reduce crutches to one crutch in the opposite hand and walking as much as tolerated.



These pages contain content extracted from "Single-stage osseointegrated reconstruction and rehabilitation of lower limb amputees: the Osseointegration Group of Australia Accelerated Protocol-2 (OGAAP-2) written by A/Prof Munjed Al Muderis, Belinda Bosley, William Lu and Claudia Roberts" in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) and is offered freely.

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Osseointegration: what to expect, overview and common questions:

→ Single-stage Osseointegration Overview

→ Patient Screening (12 to 3 months prior to surgery)

Referral → Online inquiry form → Team contact → Questionnaires → Patients attend clinic → Clinical, radiology and psychological examinations; baseline values recorded.

→ Preoperative Management (3 to 0 months before surgery)

Surgical Planning → Patient-specific implant selection → Pre-op physical Training Program → Muscle and core strengthening for wheelchair-bound patients and pre-gait training for prosthetic users.

→ Osseointegration Surgery (0 weeks)

Single-stage surgery → Press-fit fixation of osseointegration implant system.

→ Post-operative Management (0 to 4 weeks)

Pain management and wound care (*see overview to the right*)

→ Post-operative Rehabilitation (0 to 3-6 weeks)

- Phase 1: Static axial load-bearing (*see page 2*)
- Phase 2: Rehabilitation prosthesis (*see page 3*)
- Phase 3: Definitive prosthesis

→ Ongoing Physiotherapy (6 weeks +)

Daily weight-bearing and further gait training.

→ Follow-up (6 weeks +)

Radiographic outcomes → 6 weeks; 3 months; 6 months; 12 months and annually thereafter.

Functional and quality of life outcomes → 6 months; 12 months and annually thereafter.

Bone density scans → 12 months and annually thereafter.

→ Pain Management

Post-op pain and discomfort is not uncommon and should be discussed with your doctor and prosthetist on an ongoing basis to ensure proper care and avoid complications.

→ During this first 12 months the following can be expected:

- From time to time you may get irritation around the skin/implant interface site as a result of increased activity.
- Increase activity may promote skin growth around opening (granulation tissue), if so contact your doctor or prosthetist.
- Muscular aches and pain may occur and you may need to slow down a little, with time you'll regain muscle strength.
- In the case of trans-tibial OI surgery (BK), the knee joint may develop pain. This is managed with ice, elevation and rest. If it persists, consult your doctor or prosthetist.
- In the case of trans-femoral amputees (AK), hip pain may occur. This too should settle down over the first 12 months.

→ How to avoid infection of the residual limb?

- Sensible hygiene is all that is required. The less handling of the surgery area, the less the risk of infection or irritation.
- Washing twice a day with a gentle soap is recommended. Simply pat dry with a sturdy paper towel afterwards.
- A soft "shaving" brush is ideal to clean the metal abutment which protrudes from the skin – clean any debris.
- If granulation tissue occurs, a topical cream can help treat this issue. Ask your pharmacist for advice regarding Hydrocortizone, Natamycin and Neomycin-based creams.
- Some patients have had good results with SoloSite cream to provide some lubrication and healing to the surgery site.
- Application of any cream/ointment to your residual limb site should be done with a clean cotton swab to avoid infection.
- It is advised that hair follicles around the residual limb site be reduced. This can be done with laser hair removal.
- It is normal and healthy to have some mucous secretion from the surgery site. This is natural if golden/clear, however milky colored discharge associated with pain is an indication of infection. Consult your doctor.
- A lack of secretion may result in the formation of a dry crust, the crust needs to be cleaned regularly to prevent bacterial colonization within the surgery site.