



PROSTHETICS
BRACING
ORTHOTICS

STEP INTO THE FUTURE

**Understanding the
Osseointegration
Journey in Ontario**

Have you been wondering if Osseointegration is the right choice for you, or someone you care about?

The teams at PBO Niagara, PBO Barrie, PBO Kawartha and PBO Owen Sound have worked together to create this guide. Our goal is to help you:

- **Build knowledge about what Osseointegration is and what the procedure involves**
- **Gain a better understanding of the pros and cons of Osseointegration**
- **Determine if Osseointegration might be an option for you or someone you care about**
- **Connect with an Amputee Care Team in the province of Ontario who has direct experience helping amputees navigate their way through the Osseointegration process**

Let's get started!

Answering Your Questions About Osseointegration

What makes Osseointegration different than traditional prosthetic solutions?

Osseointegrated prosthetic implants differ from traditional socket-based solutions in that rather than using a socket to connect the amputee's residual limb to the prosthesis, a surgery is performed to insert a titanium implant into the marrow space of the bone. The implant, which is called a fixture, becomes integrated into the bone over time to become part of the bone. An abutment is attached to the fixture and brought out through the amputee's soft tissue and skin, which allows the prosthesis to be attached directly to the abutment.

Following the surgical procedure, the amputee undergoes aggressive physiotherapy to allow for a very gradual, progressive bearing of weight on the prosthesis. Normally, within six months of surgery the amputee has completely integrated the new prosthesis into their life. In fact, one Canadian amputee who had the surgery was walking with the use of only one cane without pain just four weeks following her surgery!



What are the benefits of Osseointegration?

Amputees who have undergone Osseointegration surgery report a wide range of benefits from their new prosthesis, including:

- Freedom from friction pain
- Elimination of skin breakdown and perspiration
- A better sense of balance
- Better feedback from the terrain they walk on
- Improved body alignment
- A decrease or total absence of phantom pain
- Improved bone density
- Less restriction of muscles, creating a stronger, more defined residual limb musculature
- Increased daily step counts. Some single- and double-leg amputees having increased their daily steps by 50 – 80% compared to the distances they walked before the surgery

Are there risks associated with Osseointegration surgery?

As with most major medical procedures, Osseointegration surgery does carry potential risks. As the amputee's implant protrudes through the skin to connect directly to the prosthesis, it is possible for bacteria to track up the metal implant to the femur. Diligent skincare at the exit point of the implant is critical in order to prevent potential skin complications and infection.

Low bone density can also lead to other complications if the bone is not strong enough to withstand a significant increase in force following the surgery. Potential risks related to low bone density include bone fracture at the top of the implant, splitting of the bone at the implant or lack of bone integration with the implant.

Where is Osseointegration surgery currently available?

Until 2018, Canadian amputees had to travel to hospitals in Australia and Europe in order to undergo Osseointegration surgery. In 2018, the first Canadian Osseointegration surgery was performed in Montreal by Dr. Robert Turcotte. A client from PBO Group was the second person in Canada to undergo the procedure there.

How much does getting an Osseointegrated prosthetic implant cost?

From our experiences with Ontario Osseointegration candidates, we have seen costs for services related to pre-surgery, surgery and post-surgery care be quite variable and cover a very dramatic range. Like most medical procedures, there are a variety of factors that can influence cost. Some of the factors that can impact the costs associated with Osseointegration include:

- Length of residual limb
- Level of amputation
- Prosthetic requirements
- Funding model and supplementary contributors
- Travel expenses
- Duration of rehabilitation
- Potential post-surgical complications

As a result, we strongly recommend interacting with an Amputee Care Team at one of our locations to better understand your exact situation to determine a range of costs that will be narrower and more accurate.

Is funding assistance available for Osseointegration surgery, support and prosthetic equipment?

While costs related to osseointegration are not currently covered by OHIP, we do know that conversations with key decisions makers are taking place and are hopeful that government agencies involved will also see the value in this procedure.

Please note that while information was accurate at the time this document was originally produced, the field of Osseointegration is changing rapidly. To ensure the accuracy of information at the time of reading, please speak directly with a member of our Amputee Care Team.

Understanding the Pros and Cons of Osseointegration

As you conduct your research to decide if Osseointegration might be a good option for you, it's important to assess the pros and cons in relation to your unique lifestyle.

Pros

- ✓ Direct contact to skeletal system
- ✓ No prosthetic socket needed
- ✓ Increased proprioception
- ✓ Increased prosthesis control
- ✓ Decreased heat and perspiration of residual limb
- ✓ Greater stability
- ✓ Decreased energy consumption
- ✓ Fit is not impacted by volume fluctuation
- ✓ Increased comfort (due to reduction of bulk and skin irritation)
- ✓ Encourages bone growth and muscle strength
- ✓ Quick don and doff procedure
- ✓ Improved gait
- ✓ Increased mobility

Cons

- ✗ Increased risk of infection
- ✗ Increased need for personal hygiene
- ✗ Complications that may arise are most likely surgical and often not simply addressed by a prosthetic appointment
- ✗ Not ideal for high impact activities, such as running or downhill skiing
- ✗ Surgery of medium complexity always carries some degree of risk
- ✗ Requires time to heal and rehab

Am I a suitable candidate for Osseointegration?

Not every amputee is a suitable candidate for Osseointegration surgery. While a conversation with our Amputee Care Team is the best method for determining if your unique situation would make you a viable candidate, there are some basic factors that can serve as a helpful starting point.

You MAY be a good candidate for Osseointegration if:

- ✓ You experience problems like perspiration, skin irritation and pain with your socket
- ✓ Your walking distance is limited because of your socket
- ✓ You can't sit comfortably with your socket
- ✓ You suffer from back pain because of your posture and/or gait

You MAY NOT be a good candidate for Osseointegration if:

- ✗ You smoke
- ✗ You have low bone density
- ✗ You enjoy high-impact activities, such as running or downhill skiing

A Typical Osseointegration Timeline

When it comes to anticipating the timelines around an Osseointegration procedure, there are many factors at play. The dates can be quite variable due to the differences in healing rate, physical therapy progression, and funding acquisition. The sample timeline below offers a general sense of the time required to complete the journey.

| | |
|---------------------------------------|---|
| Day 1 | Decision to pursue Osseointegration |
| Day 7 | Meet with an Osseointegration Amputee Care Team |
| Day 8 | Final determination of desire to pursue Osseointegration |
| Day 10 | Referral to a surgical site for pre-surgical screening/acceptance |
| Day 10 | Initiate funding acquisition process (the most variable of all the steps) |
| Day 30-45 | Consult date with Osseointegration Surgical Team |
| Day 31-46 | Final determination of appropriateness for OI surgery |
| Day 30-90 | Completion of funding acquisition |
| Day 90-120 | Pre-surgical physical therapy program |
| Day 90-120 | Surgical date |
| Surgical Date + Day 1 - 5 | Short-term healing |
| Surgical Date plus Day 5 - 25 | Initiate slow weight bearing schedule and slowly increase weight and preliminary gait training exercises |
| Surgical Date plus Day 5-10 | Introduce lightweight temporary prosthesis components for initial gait techniques and weight bearing as tolerated |
| Surgical Date plus Day 25 – 40 | Continue to increase gait tolerance, introduce more advanced gait techniques and slowly reduce reliance on gait aids such as cane |
| Surgical Date plus Day 40 – 60 | Introduce definitive prosthetic set up and fine tuning of alignment and componentry for Osseointegration set up |

What Our Clients Are Saying About Osseointegration

The following comments were collected from clients that our own Certified Prosthetists have supported through the Osseointegration journey in both Australia and Canada.

"I feel like my old self more today than I ever have."

"The leg now attaches to me. It's part of me. It is part of my body. It is hard to explain how big a difference that is. It is life changing."

"I used to go through a whole procedure to get my leg on. It was attached to a plastic cup. There were skin problems. The plastic cup is gone. I don't miss it."

"You're back owning your leg again. You now feel what you're walking on. You can feel the difference between carpeting, cement, tile floors, gravel. You can feel all that through the vibration of the bone."

"It is almost like a TV antenna. It is giving me feelings I didn't have before. It connects me to my body. It's like going from regular TV to hi-def."

"I can feel right up into my femur. The base is much more solid. It's having a castle built out of blocks on a concrete driveway or a castle of blocks built on a dock. The dock moves. My flesh moves. My body moves. Nothing was stable. This is no different than my bone. It isn't going anywhere."

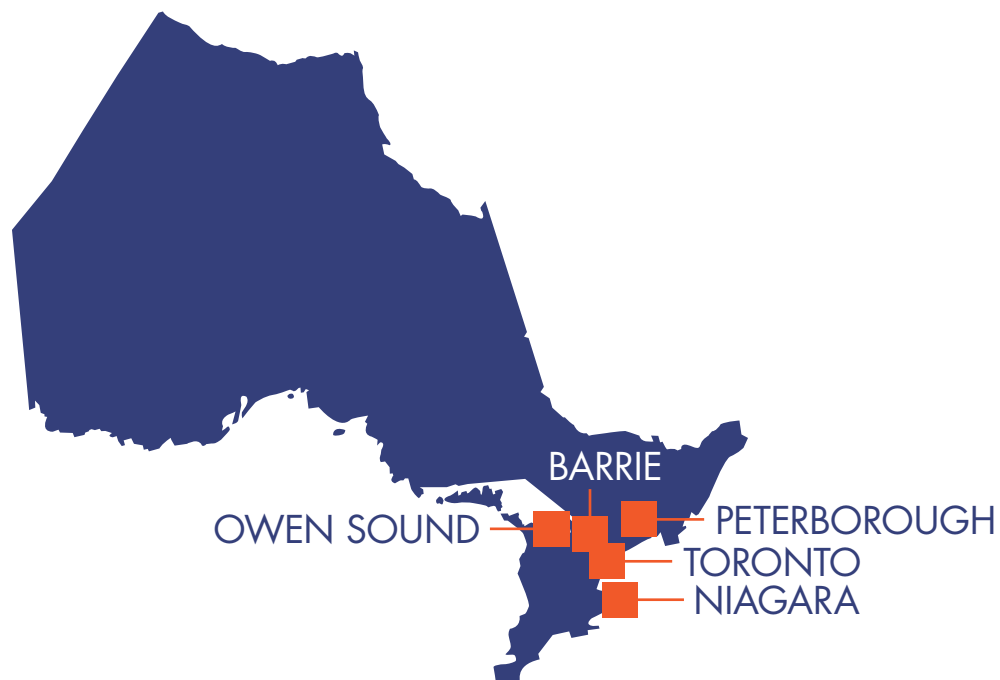
"My advice for any amputee that is considering this surgery is: the sooner the better. The longer that you leave it, the more the bone starts to deteriorate and the harder it is for the surgery."

Take the Next Step:

Connect with Our Amputee Care Team

The Certified Prosthetists at PBO Niagara, PBO Kawartha, PBO Barrie, PBO Owen Sound and PBO Toronto have joined forces to provide expert Osseointegration guidance and care for amputees throughout the province of Ontario. Our team members offer proven expertise in the field. Related experience highlights include:

- Direct training from The Osseointegration Group of Australia
- Participation on Prosthetics Canada Osseointegration Advisory Board
- Pre- and post-surgery support of 10 amputees who have already undergone Osseointegration or are scheduled for surgery in 2019
- Direct communication and integrated patient care with Osseointegration team at Montreal General Hospital
- Hosted an "Osseointegration Information Night" in 2017 for Care Providers and Prospective Clients



The best way to connect with our province-wide Amputee Care Team is to make a phone call and book an appointment to discuss your unique situation with one of our Certified Prosthetists in the location that is most convenient to you.

Call our Amputee Care Team to book your appointment at **1-877-331-3395** or send an email to **info@pbogroup.ca** and one of our clinics will contact you directly.

As you review the material in this booklet, use the spaces below to make notes and record any questions you'd like to ask when you meet with your Prosthetist or Surgeon.

Notes _____

Questions I Want to Ask _____



OWEN SOUND — BARRIE — PETERBOROUGH
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