A part of
REGION VÄSTRA GÖTALAND

The OPRA Implant System

Treatment Success

SAHLGRENSKA I.C.

Advanced care at hand

The OPRA implant system provides bone-anchored prostheses

Osseointegrated Prostheses for the Rehabilitation of Amputees, OPRA, improve quality of life and offer a greater degree of freedom in everyday life for 9 out of 10 patients.

The majority of people who use prostheses have reported a range of problems and difficulties with the prosthetic socket. For instance, the socket is unable to keep the prosthesis in a fixed position. There are also limbs that are not suited to the use of a prosthetic socket, due to a short residual limb, scar tissue or muscle damage, among other things. The Osseointegrated Prosthesis for the Rehabilitation of Amputees, OPRA, method provides direct bone anchorage. This is made possible by surgically implanting a titanium screw into the bone. The prosthesis can thereby be attached without using a socket, which means that the prosthesis always fits, always attaches correctly and is always held firmly in place.

Improved moving ability

With a bone-anchored attachment, you can move more freely but also on a more regular basis, as you will not need to worry about chafing or discomfort.

Stable attachment

A bone-anchored prosthesis is attached without using a socket, which ensures stability. Another benefit is that it only takes a few seconds to attach the prosthesis.

Enhanced comfort

The absence of the prosthetic socket will improve comfort and will enable patients with above-knee amputations to, for example, sit more comfortably and also cross their legs.

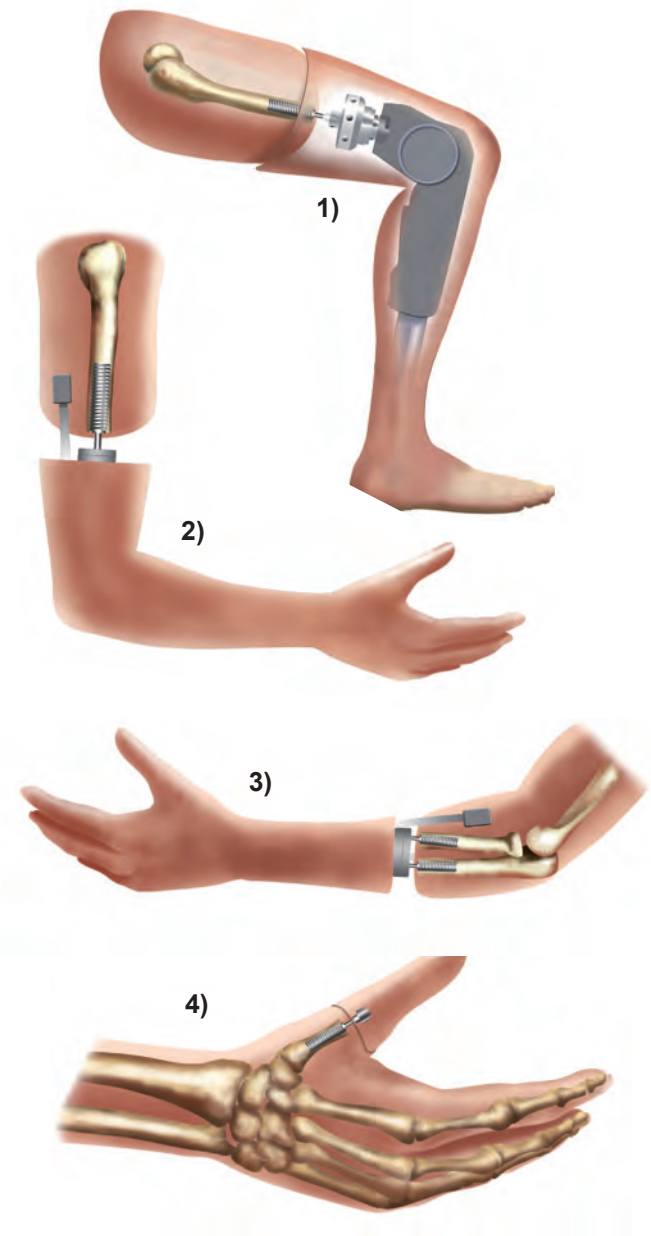
Reduced pressure, sores and pain

In a Swedish scientific survey of patients with unilateral above-knee amputations, 72% report problems with heat and sweating in the prosthetic socket, while 62% report problems with chafing. With a bone-anchored prosthesis, you no longer need to think about these sources of discomfort.

What is osseointegration?

Osseointegration is a method for anchoring the prosthesis directly to the bone. Swedish Professor Per-Ingvar Brånemark developed the method in the 1960s, when he discovered that titanium is not rejected by the body but instead integrates with the surrounding bone tissue. The discovery was initially used for the prosthetic replacement of teeth, but it has since been further developed. Today, osseointegration is also used for leg, arm and facial prosthetics, as well as the anchorage of hearing aids.

Bone-anchored prostheses



The OPRA method provides direct bone anchorage by surgically implanting a titanium screw into the bone.
1) Above-knee (transfemoral) amputation
2) Above-elbow (transhumeral) amputation
3) Below-elbow (transradial) amputation
4) Thumb amputation

A vision made real

– I feel simply perfect with this leg, Irene Villa says, here with Dr. Rickard Brånemark.

Rickard Brånemark, MD, PhD, is the son of Professor Per-Ingvar Brånemark. Born and raised in an environment where implantation was always present, Dr. Brånemark became increasingly aware of the advantages of osseointegration. He also realised that he had the ability to help people achieve a greater degree of quality of life and freedom in their everyday lives.

Today, Dr. Brånemark is the director of the world-leading Centre of Orthopaedic Osseointegration (COO) at Sahlgrenska University Hospital. The Direct Bone Anchorage of Amputation Prostheses method has been established by the team at the COO and is based on 20 years of clinical studies.

– Advanced development in medical technology takes a long time to achieve. Attaching prostheses directly to bone with implants was an unattainable vision for a long time and the development has been ongoing for more than 20 years, as it has to be quality assured in a scientifically accepted manner, Dr. Brånemark explains.

Even though a prosthesis can never fully replace an arm, a leg or a hand, studies show that patients treated with osseointegration have significantly enhanced their quality of life. To Dr. Brånemark, the positive relationships he establishes with patients is enormously important.

– Our method helps people to restore most of their functional ability and thereby live a normal life, no longer controlled by their prostheses. I really feel that I am doing something meaningful and this is what keeps me going, Dr. Brånemark says.

”I can now move without pain”

One of Dr. Brånemark’s patients is Irene Villa from Spain. At the age of 12, she lost both her legs and several of her fingers due to a bomb planted in her mother’s car by the terrorist organization ETA.

”But the best thing to me is that it feels like the leg is my own”

When she recovered from her injuries, Irene decided to live life to the fullest and she has since taken part in several sports such as skiing, diving and canoeing. She has also written two novels and it was at a presentation of her first novel in Baskia in 2005 that she first came in contact with the bone-anchored prosthesis method.

– After my presentation, I met a man from the audience who had had surgery in Sweden by Dr. Rickard Brånemark. When he showed me how the system worked, I was amazed at how he moved his legs. As I had been experiencing a number of problems with the prosthetic sockets, I quickly decided to undergo the same surgery, Irene explains.

In November of the same year, she had her first operation in Gothenburg and, even though she experienced problems with an infection afterwards, she is certain she would do it over and over again.

– Your quality of life is really enhanced. This system lets you do whatever you want, as long as you do regular physical exercise. It is important to be strong, as you move your legs with your back and stomach, Irene explains.

The new prosthesis has made it easier for her to take part in sports, as she can now move more easily and without pain and she recently became the Spanish champion in sitski.

– But the best thing as I see it is that it feels like this leg is my own. I also appreciate being able to cross my legs, which is something I really love and was not able to do for many years. I feel simply perfect with this leg, complete, Irene says.

Steps towards your new life

Applying

To be able to consider your case, the Centre of Orthopaedic Osseointegration (COO) will need the following information:

1) a brief description of your amputation (cause and year) and the problems you are currently experiencing with a socket prosthesis,
2) a plain-film X-ray of your residual skeleton,
3) a description of any illness and/or disabilities you may have.

Before making a decision relating to treatment, you will be given an appointment at the Centre of Orthopaedic Osseointegration (COO) at Sahlgrenska University Hospital for a team assessment.

Treatment plan

Your treatment plan will be based on a treatment protocol. However, every limb is different and, due to individual risks and needs, every patient is given his/her own treatment plan within the framework of the two basic programmes (normal- or half-speed protocol).

Pre-treatment

We urge our patients to stop smoking and, if necessary, to lose weight before the operations.

We also need to know if you are suffering from any diseases. Operations will not be possible if you are suffering from a severe vascular disease.

Implant surgery

The treatment consists of two operations with a six-month interval. In the first operation, a specially constructed titanium screw (fixture) is installed in the residual femur. The period of hospitalisation is usually about seven days.

In the second operation, an abutment is added to the fixture. The abutment protrudes through the skin.

In order to optimise skin healing, you need to remain in bed. The period of hospitalisation is usually 10-14 days and you will not be able to do any heavy exercise or stretching over the next few weeks.

Post-treatment

After the skin penetration area has healed, which is approximately six weeks after the second operation, loading of the bone/implant can begin, using a knee-level short training prosthesis.

The everyday exercise is based on your imposing a load on the prosthesis on an ordinary weighing scale. By gradually increasing the load, the strength of the bone will improve. About twelve weeks after the second operation, at the earliest, training and walking can begin with a "long" prosthesis. During the first few weeks, you will only be allowed to use the prosthesis for a few hours a day, indoors and supported with crutches.

Confirmation that you may start to walk unaided or supported by one crutch or a cane will be given after the follow-up visit and X-ray, six months after the second operation.

Recovery and check-ups

If no complications occur, osseointegration will normally be totally satisfactory one year after the first operation takes place.

Please note that, once treatment is completed, regular medical check-ups will still be performed at Sahlgrenska University Hospital. In addition to the check-ups, the Department of Prosthetics and Orthotics also examines the actual prosthesis.

As with all types of surgical treatment, there is a risk of complications that may change the treatment or lead to a less satisfactory result.

Please note that "*Steps towards your new life*" is exemplified by the treatment process of patients with above-knee amputations.

Please do not hesitate to contact us for more information regarding treatment plans for arm, hand and finger amputations, as details may differ.

The treatment consists of two operations with a six-month interval.

About Sahlgrenska University Hospital

Sahlgrenska University Hospital has the experience and the expertise to carry out many of the most advanced treatments currently available in modern medicine. The hospital is the Swedish centre for certain types of specialized care, especially in pediaetrics, and is well known for its successful transplant activity, treatment of cardio-vascular diseases, immunology and research into vaccines.

The COO team

In 1999, the Centre of Orthopaedic Osseointegration, COO, was set up at Sahlgrenska University Hospital. Today, the COO team is world leading in the field of orthopaedic osseointegration.

This treatment success is due both to technical skills and to the treatment itself in which every patient is offered an individual treatment plan, based on varying individual conditions.

The COO teamalso collaborates with several other units within the hospital, including a complete team of researchers. They conduct studies on everything from the surface characteristics of the screw to the quality of life of patients, as well as ways of improving the prostheses.

Sahlgrenska I.C.

Sahlgrenska I.C. (Sahlgrenska International Care AB) is a company wholly owned by the county council, "Region Västra Götaland", and is dedicated to offering Swedish health care quality to patients all over the world. Sahlgrenska University Hospital and Sahlgrenska I.C. provide world-leading specialist skills, innovation and results, which improve life and health both locally and internationally.

Application management

Applications and financial matters relating to foreign nationals are administered by Sahlgrenska I.C. You can find our application form at www.sahlgrenskaic.com

You can also contact us for further information:
Sahlgrenska I.C.
Box 7163
SE-402 33 Göteborg
Sweden

Phone: +46 (0)31 342 68 00
Fax: +46 (0)31 13 26 25
E-mail: info@sahlgrenskaic.com

Care and treatment

For further information, please feel free to contact our patient co-ordinator at
Centre of Orthopaedic Osseointegration:
Phone: +46 (0)31 342 88 06
E-mail: coo.su@vgregion.se

SAHLGRENSKA I.C.

Advanced care at hand

Sahlgrenska International Care AB
P.O. Box 7163 | SE-402 33 Gothenburg, Sweden
Visiting address: Medicinaregatan 12 a
Phone +46 (0)31 342 68 00 | Fax +46 (0)31 13 26 25
info@sahlgrenskaic.com | www.sahlgrenskaic.com