

# ISPO World Congress and ORTHOPAEDIE + REHA-TECHNIK 2010

## SESSION – Upper Extremity Prosthetics – Socket

TUESDAY 11 MAY, 15:00–16:30, HALL 1

*Stewe Jönsson, CPO*

Sahlgrenska University Hospital, Dept. of Prosthetics and Orthotics

### Congress lecture:

Osseointegration on Upper Limb Amputee –  
Prosthetic Treatment and Outcome

Lecture #1/7

## POSTER SESSION – PROSTHETICS

WEDNESDAY 12 MAY 12:00–14:00, FOYER HALLS

*Jonatan Tillander, MD*

Sahlgrenska University Hospital, Dept.  
of Infectious Diseases

### Poster Presentation:

Osseointegrated Titanium Implants for Limb Prosthesis  
Attachment – Infectious Complications

Lecture #1/115

## SYMPOSIUM 1 Osseointegration Technique – Surgical Procedures, Postoperative Management

THURSDAY 13 MAY, 10:30–12:00, HALL 1

*Örjan Berlin, MD, PhD*

Sahlgrenska University Hospital, Centre of Orthopaedic  
Osseointegration, Dept. of Orthopaedics

### Congress lecture:

Development of Surgical Procedures and Postoperative  
Management of Transfemoral Amputees (TFA) with  
Osseointegration (OI) in Sweden

Lecture #1/4

*Rickard Brånemark, MD, PhD*

Sahlgrenska University Hospital, Centre of Orthopaedic  
Osseointegration, Dept. of Orthopaedics

### Congress lecture:

Where Are the Limits – Surgical Approach and  
Case Reports from Sweden

Lecture #4/4

## SYMPOSIUM 2 Osseointegration Technique – Rehabilitation, Long-Term Results, Complication Management

THURSDAY 13 MAY 15:00–16:30, HALL 2

*Kerstin Hagberg, RPT, PhD*

Sahlgrenska University Hospital, Dept. of Prosthetics and  
Orthotics, Centre of Orthopaedic Osseointegration.

### Congress lecture:

OPRA Rehabilitation Protocol and Outcome of Transfe-  
moral Osseointegration in Sweden

Lecture #1/6

*Kerstin Caine-Winterberger, OT*

Sahlgrenska University Hospital, Upper Limb  
Rehabilitation Center

### Congress lecture:

Rehabilitation and Outcome of Upper Extremity with Bone  
Anchored Prostheses in Sweden

Lecture #2/6

*Rickard Brånemark, MD, PhD*

Sahlgrenska University Hospital, Centre of Orthopaedic  
Osseointegration, Dept. Orthopaedics

### Congress lecture:

Dealing with Complications and Long Term Results

Lecture #5/

## SESSION: Lower Limb Prosthetics - Biomechanics 1

THURSDAY 13 MAY 17:00–18:30, HALL 2

*Kerstin Hagberg, RPT, PhD*

Sahlgrenska University Hospital, Dept. of Prosthetics and  
Orthotics, Centre of Orthopaedic Osseointegration.

### Congress lecture:

Increased Walking Habits and Decreased Energy  
Cost with Osseointegrated Transfemoral Prostheses –  
Prospective Results from the OPRA Study

Lecture #3/7

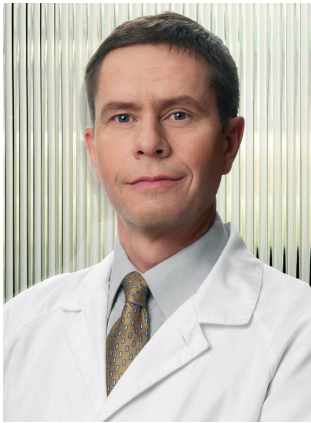
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# Life-changing bone-anchored prostheses

*Rickard Brånemark is an orthopaedist at Sahlgrenska University Hospital in Göteborg. He is also the man who developed the idea of attaching prostheses straight to the bone using a titanium implant. In the 1950s, Rickard's father, Per-Ingvar Brånemark, discovered that titanium has a unique ability to fuse with bone tissue. He launched his now world-famous method of anchoring dental implants more than 40 years ago.*



It was obvious that Rickard would be a doctor from an early age and his leaning was towards research. However, his grades weren't good enough for medical school, so instead he became a civil engineer, which would prove to be the perfect introduction to his true vocation. Eventually he also completed medical

training and, as the Brånemark he is, he wrote his doctorate on the biomechanics of titanium implants. The rest is history.

## Must be load resistant

By the time he and his titanium screws moved into Sahlgrenska University Hospital in 1999, he had spent a decade testing the method. The challenge is to determine how large the contact area between the implant and the bone has to be to permit the necessary load.

– Even if our method is still in an early phase, we are confident that it works, says Rickard Brånemark. This is why our vision is that the implant will be almost as strong as the bone was before the amputation.

## 200 patients so far

Up to now, Brånemark and his group have treated 150 patients in Göteborg, and an additional 50 patients have been treated in other parts of the

world. Many patients contact them with joyous news about how the titanium implant has changed their lives.

– Losing a leg or an arm affects life in very many ways, not least socially, says Rickard Brånemark. So our aim is to restore mobility as far as possible, even if it's not possible to run marathons any more.

## One year of treatment

Getting a bone-anchored prosthesis is a treatment that takes around one year. The actual osseointegration, i.e. getting the bone to fuse with the titanium implant, takes an average of six months. The remaining time is spent gradually increasing the load placed on the implant. Rickard Brånemark believes that this time will be reduced in the future.

– The better the quality of your skeleton, the faster this process will be. It's therefore important that an early assessment is made as to whether the patient has the right prerequisites for optimal treatment. But in general, one can say that if you load your skeleton, even if you're no longer so young, the skeleton responds and becomes stronger.

## The next stage: robotic control

Rickard has met a fair amount of resistance from colleagues, but this is changing and there are fewer sceptics as patient numbers increase. So Rickard is now contemplating the next stage of development, which is to combine his technology with advanced controls for robotic prostheses – and that is not far away, he says confidently.

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Sahlgrenska International Care AB

P.O. Box 7163 | SE 402 33 Gothenburg, Sweden | Visiting address: Medicinargatan 12 a  
Phone +46 (0)31 342 68 00 | Fax +46 (0)31 13 26 25 | [info@sahlgrenskaic.com](mailto:info@sahlgrenskaic.com) | [www.sahlgrenskaic.com](http://www.sahlgrenskaic.com)