

Future Innovations — Osseointegration

In this issue you will learn about the second of two prosthetic treatment options that is on the horizon. Osseointegration is a revolutionary method of suspending a prosthesis on a patient. Dr. Rickard Branemark, Centre of Orthopaedic Osseointegration, Department of Orthopaedics of the Sahlgren University Hospital in Goteborg Sweden, has been testing the osseointegration technique since 1990. His father discovered osseointegration, and his research led to the method for installing dental implants that is widely accepted in the world today. With Dr. Branemark's help, tests have begun to get FDA approval to use this method in the United States.

Osseointegration is defined as "the direct anchorage of an implant by the formation of bony tissue around the implant without the growth of fibrous tissue

at the bone-implant interface" (*Dorland's Illustrated Medical Dictionary, 28th Edition*). This technique involves placing a titanium rod in the

shaft of the bone. The rod, called an abutment, pro-



trudes through the skin and has an attachment point at the distal end. After a healing period, about six months, the patient is allowed to start bearing weight on the residual limb. The attachment point on the distal end of the rod or abutment takes the place of the current socket in terms of suspending the prosthesis on the patient. The benefit to the patient is that this process eliminates the issues involved with socket fit and wear and tear on

Loren's Lines

Recently someone asked me what makes Capitol Orthopedic different from other orthotic and prosthetic services. I have settled on two things that make Capitol Orthopedic stand out: We provide high quality patient care and we solve problems by being innovative.

We understand that providing great patient care requires more than pulling a brace off the shelf and putting it on a patient. At Capitol Orthopedic, we take pride in finding innovative ways to solve tough cases. That is part of what Rick Pierson, CPO and I like so much about working in orthotic and prosthetics.

When a patient comes into our office, we strive to treat him/her like we would want to be treated. Whether it is offering a cup of coffee or taking extra time going over the procedure and what to expect in the coming months of rehabilitation process,

our patients will get great treatment.

Because we are a referral based business, we want our patients to tell their friends, and you, how well they were treated when they came to Capitol Orthopedic.

If that is the kind of treatment you would like, please remember Capitol Orthopedic when you refer patients for orthotic or prosthetic care. We would love the opportunity to give your patients high quality, innovative care.

Patients can schedule an appointment by calling 913.526.5271. If you want more information about Capitol Orthopedic, visit capitolortho.com.



Osseointegration continued

the tissues of the residual limb.

Of the 66 patients in the study, most have increased their activity level. Having a mechanical attachment directly to the patient provides a more secure fit and more confidence while performing daily activities, and giving them the ability to perform higher level activities. Patients don't have to worry about losing suction, nor do they feel the milking sensation of a pin and lock suspension system.

The method has been used on both upper and lower level amputees. In transtibial or transradial amputees, a rod is placed in each bone and two abutments are used to attach the prosthesis.

To reduce the risk of fracturing the bone above the implant if a patient should fall or otherwise stress the prosthesis, safety measures have been implemented. The current measure being used in Sweden and Australia is making the abutment out of a softer metal than the implant in the bone. Since the abutment is softer, it "gives" by bending, and therefore prevents a fracture in the bone. This abutment can then be replaced by unscrewing it from the im-

planted rod without requiring surgery. A breakaway or quick release system is also being developed.

At this time, work is being done to develop a protocol for this surgery in the United States. The chief concern is preventing infection at the abutment site around the implant. Infection rates in the Swedish program have been significantly reduced and they state that they have not had a significant incidence of infection since 1999. In order to get FDA approval, standards have to be set for this method to be used.

Due to the high number of service men and women in need of prosthetic devices, the Veterans Administration is very interested in osseointegration and is pushing for the standards to be set. Despite this push, it appears that it may be several years before osseointegration will be an option for care in the United States.

For more information about osseointegration, or if you have other prosthetic and orthotic questions, feel free to call at any time.