Better alignment in knee replacement

Dick Leidenheimer had significant knee pain.

Two arthroscopic procedures on Dick's right knee failed to bring him long term relief, and his increasing pain began to have an effect on his golf game.

"I like to play golf a couple times a week," he says, "but it really pained me to have to walk up and down the hills on the golf course. My wife, Mary Ellen, is a volunteer in the lab at Manatee Memorial Hospital, and she encouraged me to see Dr. Alan Valadie, who does knee replacement surgeries there.

"Well, I was in a lot of pain, and I didn't want another arthroscopic procedure, so I agreed to schedule an appointment.

"Dr. Valadie was great!" says Dick. "I know a lot of the nurses at the hospital, and they swear by him. He has a great reputation in the community, too, and as soon as I met him, I felt comfortable with him. He told me about a new surgical guidance system for knee replacements that would help him place my new knee perfectly. When he told me I was a good candidate for it, I said, *Let's get it done!"*

THE STRAIGHT SCOOP. Dick was surprised at his quick recovery following total knee replacement using Computer-Assisted Navigation.

What's so new?

"The biggest challenge in performing a successful knee replacement surgery is to have perfect alignment from the center of the hip, to the center of the knee, to the center of the ankle," informs Alan L Valadie, MD, of Coastal Orthopedics & Sports Medicine. "Studies show that being even two or three degrees off in alignment will result in a shorter life span for the new knee joint, and patients will have increasing difficulty with comfort, gait and range of motion.

"Until recently, surgeons have had to rely on their advanced knowledge of anatomy and specially designed instruments to help them achieve the best alignment possible," says Dr. Valadie, "but now, powerful computer software and infrared optics have combined to provide us with the means to achieve greater accuracy than ever before."

In January 2005, Manatee Memorial Hospital installed the Stryker® Computer-Assisted Navigation System for Knee Surgery, and Dick is one of the first patients in Manatee County to benefit from this innovative approach to knee replacement.

How it works

Dr. Valadie explains that Computer-Assisted Navigation functions much like a GPS (Global Positioning Satellite) to help the surgeon align and orient knee implants with a patient's anatomy.

"We use minimally invasive wireless instruments to identify bony 'landmarks' along the leg, from the hip to the ankle," says Dr. Valadie. "These instruments send data in real time to a computer, which then converts the information into charts and graphs that are displayed on a nearby screen. The interactive displays help guide every aspect of the surgery, providing the surgeon with the angles, lines and measurements that are needed to align the prosthesis according to the individual patient's anatomy.

"This system is so accurate that the computer can tell within a fraction of a degree if we're where we want to be, before any bone is cut."

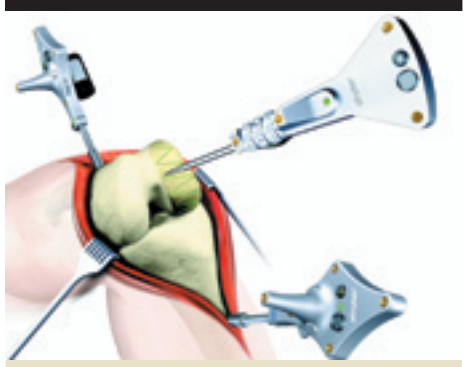
With Computer-Assisted Navigation, a patient receives true customization in knee replacement surgery. "The goal of this technology," reinforces Dr. Valadie, "is to achieve perfect alignment of the knee and perfect range of motion every time."

Dr. Valadie adds that, in a straightforward knee replacement surgery, using the precise measurements of Computer-Assisted Navigation may add up to ten minutes to the time it takes to perform surgery. In complicated cases, where there is significant deformity of the bones to be treated, the technology *saves* time because it allows the surgeon to know, before making any bone cuts, exactly where the cuts should be placed, and how they will affect the outcome.

"Computer-Assisted Navigation also allows us to take advantage of minimally invasive surgical techniques," adds Dr. Valadie. "Now, instead of making a twelve-inch incision, we are making a four- to six-inch incision. This translates into a speedier and much more comfortable recovery for the patient.

"Computer-Assisted Navigation provides us with a higher level of consistency and accuracy than ever before," says Dr. Valadie. "It improves a good operation, and makes it an *excellent* one."

Computer-Assisted Navigation



- Does not require pre-operative x-rays or CT scans
- Provides surgeon with a comprehensive understanding of the patient's knee mechanics before any bone is cut
- Allows the surgeon to make adjustments to within a fraction of a degree, ensuring best fit and knee motion
- Allows correct position and orientation of the implant, even in difficult anatomic situations
- Leads to shorter hospitalizations, fewer complications, improved joint stability
- May soon include procedures for total hip replacement

Best outcome!

"I amazed people after my surgery," confirms Dick. "I was out of bed the same afternoon, and I felt really *good*. And I haven't used a cane or a walker or anything since leaving the hospital.

"A month after my surgery, I feel just fine," he continues. "I walk a quarter mile every day, and I'm always out bounding around, picking weeds, whatever. My therapist kept telling me she was amazed, I was so far ahead of schedule!

"I'm really tickled with this procedure," says Dick. "I know a lot more people are going to benefit from it." FHCN–*Billie S. Noakes*

Alan L. Valadie, MD, is a Diplomate of the American Board of Orthopaedic Surgery and a Fellow of the American Academy of Orthopaedic Surgeons. He completed his undergraduate studies at Florida State University, Tallahassee, and earned his Medical Degree at the University of Florida College of Medicine, Gainesville. Dr. Valadie served his Internship and completed his Residency in the Department of Orthopaedic Surgery at Carolinas Medical Center, Charlotte, NC. He is a member of the Manatee County Medical Society, Florida Medical Association and the American Association of Hip and Knee Surgeons.