

# Ci System — Touro Infirmary

**Key innovation:** computer-assisted knee replacement  
**Where they're based:** New Orleans  
**Top executive:** Dr. Richard Meyer, clinical instructor of computer-navigated surgery  
**Year introduced:** December 2004

**K**nee replacement is the most common joint replacement surgery in the United States, with almost 400,000 performed a year, according to doctors at Touro Infirmary. Every surgical movement must be precise and alignment must be perfect or else the knee will fail.

In an effort to be more meticulous in the operating room, doctors at Touro have been using computer-assisted technology to perform total knee replacements. The software was installed in December 2004 and was an immediate success.

"I think close to 300 surgeries have been done by Touro using this new technology," said Dr. Richard Meyer, a board-certified orthopedic surgeon and clinical instructor of computer-navigated surgery at Touro. "It's starting to catch on throughout New Orleans now. I was just lucky I had an interest in it years ago."

Meyer said the software, called the Ci (*pronounced "sigh"*) System, is designed and manufactured by Brainlab, a German technology firm. It involves a camera with sensors and a software program that communicates with the computer. He said the technology has been around for almost 10 years but recently became user friendlier.

"It allows us to do things in surgery we weren't able to do before," Meyer said. "The computer allows me to have smaller incisions. It gives me pictures of the knee during surgery you don't normally see, and it allows me to make computer-guided cuts to help limit the exposure we used to need."

Meyer said the procedure is minimally invasive, does not involve the use of X-rays and reduces the required amount of drilling to the bone and minimizes the risk of blood clots.

Greg Roques, physician relations assistant for Touro, said the software works off small sensors attached to each side of the knee — one on the thigh, and one on the shin bone.

"Infrared signals pick up the location of the sensors and transmit a 3-D model of the inside of the knee joint," Roques said. "This allows the operating physician to accurately locate the best possible location to position the implant."

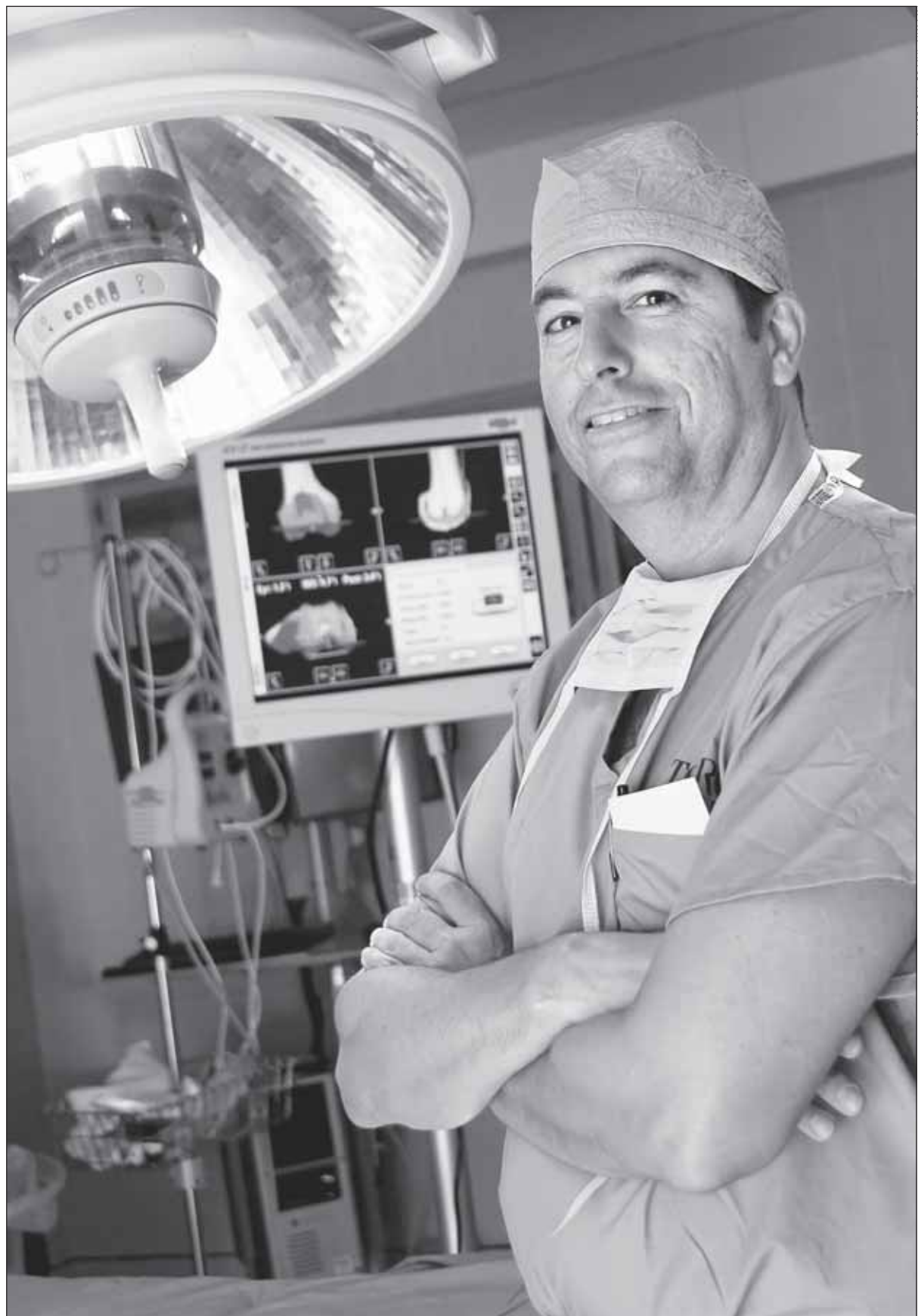
According to Meyer, accuracy is everything when it comes to knee replacement procedures, and a correctly aligned prosthesis will certainly last longer.

"There are lots of studies out there that say if alignment is off more than 3 millimeters, the knee replacement is more likely to fail," Meyer said. "It will cause increased wear and tear to the new joint, and a subsequent procedure would be required."

Roques said the technology has put much less strain on the patient. The minimally invasive procedure is less painful, and the recovery time is much faster."

Meyer has had patients walking pain-free as soon as a week following surgery," Roques said. •

— Robin Shannon



Since 2004, Dr. Richard Meyer, clinical instructor of computer-navigated surgery at Touro Infirmary, has performed computer-assisted knee surgeries using the Ci System, which minimizes pain and blood clots.