

Customized knee replacement procedure now used

Henrietta Bradley, or "Jackie" to family and friends, credits a new type of total knee replacement for getting her out of bed more quickly, allowing her to feel less pain and experience greater range of motion.

"Within an hour of the surgery I was receiving physical therapy and after two days walking and feeling very little discomfort," said Bradley, an employee at Liberty Science Center, who had her surgery last month at Jersey City Medical Center. "I had heard all those horror stories about the difficulties recovering from knee replacement, but it just didn't happen to me. I feel blessed to have heard about this new type of knee replacement."

Bradley, who is very active with her neighborhood block association and serves as a member of the Jersey City Police Department Advisory Board, was one of the first patients in the New York City area to undergo a new customized knee replacement procedure, which works on the premise that personalized positioning guides created especially for the patient will



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provide for a more comfortable, longer lasting implant solution.

"The difference with the Signature Customized Knee Replacement is that we use 3-dimensional software and an MRI of the patient's knee to determine size and placement of the implants prior to surgery," said Dr. Ernesto Tolentino, the orthopedic surgeon who performed the surgery on Bradley. "This allows us to make very precise and accurate bone cuts during the surgery that are specific to the individual patient. Prior to this technology, we were forced to rely on our experience and intra-operative judgment to correctly size and place the implant."

The system uses custom femoral (thighbone) and tibial (shinbone) positioning guides that fit directly

onto a patient's unique anatomy. These guides position the implants without requiring the surgeon to use traditional invasive instrumentation, allowing for a potentially less invasive procedure and a better fit.

Dr. Tolentino, who has 40 years of experience, added that "the patient spent considerably less time on the operating table, required less replacement blood and benefitted from everything fitting together perfectly."

Used in conjunction with a computer program to create a three-dimensional joint reconstruction, the MRI enables the surgeon to do much of the planning ahead of time. In the past, any planning was based off of two-dimensional x-rays.

Dr. Edward Poon, chair of the Department of Radiology at Jersey City Medical Center, said that the high resolution image was sent directly to the orthopedic surgery and to Bio Met, the manufacturer, via a secure internet connection.

"We now have access to a far greater level of detail and precision for implant positioning and alignment, long before we go into

the OR," said Dr. Clay Erving, chair of the orthopedic department at Jersey City Medical Center. "This greatly enhances surgical efficiency and the lives of the patients we treat."

The replacement implants include a metal alloy on the end of the femur and polyethylene (plastic) on the tibia and patella (kneecap). The implants create a new, smoothly functioning joint that prevents painful bone-on-bone contact.

Bradley, like most patients, became a candidate for total knee replacement because of a severe case of arthritis that was the result of a serious biking accident and had grown progressively worse over time. A native of Miami, she had long been active playing basketball and cycling. More recently, she had been in constant pain, often staying in his room to read and watch television on weekends rather than navigate the stairs.

"I was really hesitant to have the surgery and did whatever I could – living on pain medication and eliminating most activity – to put it off," she said. "If I had



known that it was going to be like this I would have felt differently. I'm serious now about getting back on my bike as soon as the doctor says I can. My knees haven't felt this good in 20 years."

Jersey City Medical Center was selected as one of the state's best hospitals for knee and hip replacements according to Castle Connolly, and was named the state's top hospital (among those with fewer than 350 beds). The hospital is the only Magnet designated hospital for nursing excellence in Hudson, Union and Essex counties.