

New Technology Leads To Custom Knee Replacement Surgery

An amazing new technology allowing for custom-fit total knee replacement surgery is now available in our area thanks to orthopedic surgeon, Dr. Kenneth Hawthorne. Visionaire Patient-Matched technology is an impressive new system that uses MRI and x-ray images of your knee to design and build surgical instruments customized to fit your unique knee anatomy.

A very important part of knee replacement surgery is the precise positioning of instrumentation onto the femur and tibia. Until now, this was done through a myriad of steps involving jigs, measuring devices and alignment guides all of which depended upon the surgeon's interpretation of your bony anatomy and the feedback he received from these instruments. With Visionaire, however, the positioning of these instruments is now a custom-fit. Each patient has custom-fit instrumentation.

Dr. Hawthorne states that "with traditional knee replacement surgery, many steps had to be taken simply to get the primary instruments into the correct orientation onto the patient's anatomy. With Visionaire, those steps are eliminated and improved upon because the patient-specific instrumentation actually molds to the patient's anatomy. The alignment, sizing and orientation are integrated into each patient's custom-made instrumentation."

Dr. Hawthorne goes on to state that "the primary cause of knee replacement failure is mal-alignment or poor positioning of the implants. Mal-alignment can lead to poor kinematics and wear patterns, which in turn, lead to implant loosening and

eventual failure. The success of total joint replacement is thus, largely dependent on the accuracy of the positioning of the implant. Visionaire allows me to be more confident that the instruments I am using are giving me the best possible chance to get the implant in the best orientation possible relative to that person's personal anatomy."

To get the patient-specific instrumentation made, the patient, after seeing Dr. Hawthorne, must get an MRI and x-ray of the knee. The MRI center then uploads the images to Smith & Nephew Orthopedics in Memphis, Tenn. Smith & Nephew engineers then take the data and design the custom-fit instrumentation. Throughout the entire process, Dr. Hawthorne receives updates and notifications of the design process and may at any time suggest changes to best suit the needs of the patient. Before he goes to surgery, he already knows the size and orientation of the implants he is going to utilize. Once the instrumentation has gone through the approval and sterilization process, they are shipped to the hospital days prior to the surgery.

"One very important thing to me in adopting this technology was the assurance that it didn't restrict me in any way," says Dr. Hawthorne. "I need to have the flexibility to change sizes and orientation interoperatively if I think it is necessary. If the custom instrumentation precluded me from doing that I wouldn't use it. Thankfully, it does not restrict me in any manner whatsoever. It is a very interesting technology and I am excited to offer it to the people of Volusia and Flagler counties."



**The Hawthorne Clinic is at
106 Old Kings Road, Suite E, Ormond Beach, (386) 671-0115,
and 790 Dunlawton Avenue, Suite D, Port Orange, (386) 788-4949**