



Luis A. Corrales, M.D., board-certified orthopedic surgeon and Director of Joint Replacement Surgery, pictured center, with patients Tim Otto, left, and Carole Gomez, right.

Robotic arm-assisted surgery ushers in new benefits for knee replacement patients

Tim Otto has a zest for life. As a boy and later a young man, he was an expert skateboarder, and as Tim approached 50, he continued to surf and ski.

Those activities cause wear on the knees, but it was something less conspicuous that brought the La Verne native to Casa Colina to undergo a partial knee replacement using the revolutionary Mako™ robotic arm-assisted surgical system.

“While jogging, I stepped off a curb to avoid a dog and tore the meniscus in my left knee,” said Tim, now a Pomona resident and a journeyman plumbing installer, describing the 2013 incident. “That started everything.”

Sadly, the cartilage in Tim’s knee was badly damaged. Something more than traditional meniscus surgery had to be done.

“I was bone on bone, and it was never the same after I injured it,” said Tim.

Meanwhile, the pain Tim was experiencing continued over the next three years, and he was forced to wear a knee brace.

“I had been undergoing knee injections and was looking into different options – cartilage regrowth and things like that,” Tim said. “In my 50s, I’ll need to work hard to finish out my pension, and I didn’t want to wait around. I’ll want to play hard, too!”

With the opening of Casa Colina Hospital’s new Medical-Surgical Wing on April 1, 2016, and implementation of the Mako robotic arm-assisted surgical system soon thereafter,

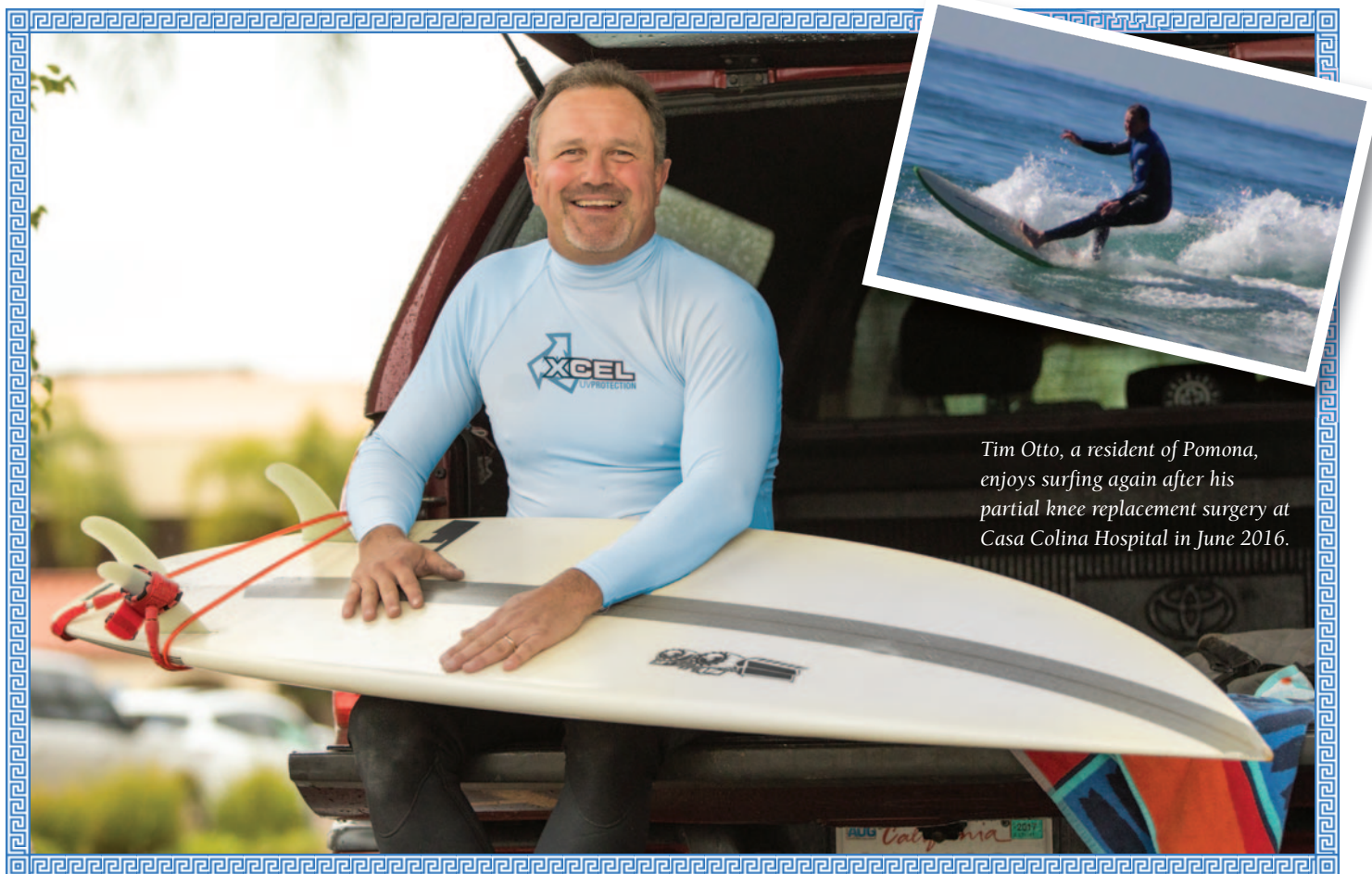
Tim scheduled an appointment with orthopedic surgeon Luis A. Corrales, M.D., Director of Joint Replacement Surgery at Casa Colina. After careful evaluation, Dr. Corrales recommended Tim undergo a partial knee replacement using the Mako robotic technology. His reasoning made sense: the new surgical device could reduce pain, minimize hospitalization, speed recovery, decrease scarring and provide better motion, creating a more natural-feeling knee.

The knee consists of three compartments: medial (inside), lateral (outside) and anterior (front), each of which are coated with cartilage that enables the knee to bend and move painlessly. The Mako robotic system, recommended for patients whose damage involves only one compartment, allows surgeons to make a patient-specific surgical plan that details the precise bone preparation and customized implant positioning using a CT scan of the patient’s own knee. With the Mako procedure, which takes traditional partial knee replacement to a higher, more accurate level, a three-dimensional virtual view of the patient’s knee anatomy is created, and the images correlate to his or her custom surgical plan.



“We’re able to plan the surgery and choose the orientation, position and size of the components that we’re going to use before we ever start the operation,” Dr. Corrales said.

During the actual surgery, as the surgeon maneuvers the



Tim Otto, a resident of Pomona, enjoys surfing again after his partial knee replacement surgery at Casa Colina Hospital in June 2016.

robotic arm, its tactile, auditory and visual feedback limits bone preparation to only the diseased areas and enables real-time adjustments and more optimal implant positioning and placement for each individual patient, eliminating the “bone-on-bone” friction and arthritis.

“Casa Colina has state-of-the-art operating rooms, any tool that’s needed to successfully perform the operation, great nursing and operating room staff, outstanding anesthesiologists who do a wonderful job controlling postsurgical pain and a great facility where patients can rest in comfort in a private room,” Dr. Corrales said. “And, obviously, we have great physical therapists here.”

The first Mako robotic procedure was completed at Casa Colina in May 2016 by Dr. Corrales, and as of February 2017, upwards of 21 had been performed.

“The main reason for acquiring robotic technology was to improve the surgical accuracy and outcomes of the procedure,” said Dr. Corrales, who has almost a decade of experience performing partial and full knee replacements and who trained on the Mako robotic system for about a year, meeting at various sites with surgeons who had experience using the platform. “As the population ages and remains active, there is a great need for this procedure and technology.” Tim’s surgery was June 15, 2016, just more than two months after Casa Colina became the first hospital in the community to acquire the Mako robotic technology, and the procedure lasted about 90 minutes. “Everything went extremely smoothly,” Tim said. “Dr. Corrales is a very good doctor, and Casa Colina is a great hospital.”

“My recovery was fast, and I was up and around before I knew it. I believe I progressed much more quickly than I would have had I undergone a full knee replacement – and with less discomfort.”

Tim was discharged the day of surgery, was walking that same day and began outpatient physical therapy at Casa Colina within a week, a regimen that lasted less than 8 weeks. During that period, therapists used a stationary bicycle, forward lunges, stretching and other exercises to further increase his mobility.

“Halfway into PT, I didn’t even need to ice the knee,” Tim said. “I was feeling really good very quickly.”

Dr. Corrales corroborated that. “By six weeks, he was pretty much back to normal,” he said.

Today, Tim’s knee is functioning extremely well and continues to improve, and he is able to do almost everything he could do prior to his jogging accident three years ago. He skateboards, surfs, rides a bicycle, walks – avoiding stray dogs with greater care – and plans to ski again. For Tim, life is good.

“Casa Colina is outstanding, and I received excellent care,” he said. “I was so disheartened before the surgery, not being able to do what I wanted. I definitely have a new lease on life.”



After years of pain, Carole Gomez also underwent partial left knee replacement at Casa Colina using the Mako robotic system. As it did for Tim, the procedure gave her a new lease on life.

The Covina resident’s problem began much differently than Tim’s. “I had gained lots of weight, and when I had the weight on, I didn’t have any problems,” said the longtime accountant, who is 48. “As soon as the weight started coming off, the knees really became an issue.”

Carole believes the damage may have been caused by the weight she had carried for many years, and as her weight dropped, she became more active, and the pain intensified. Eventually, she required regular pain medication.

“My life did get better as I lost the weight, but at the same time, I was noticing more and more pain and stiffness in my knees,” she said.

Her diagnosis was osteoarthritis. Carole, who was “literally on pain medication for five years,” was a perfect candidate for the Mako robotic system, which will eventually be used at Casa Colina to facilitate total knee replacements as well as total hip replacements.

In Carole’s case, fate played an important role. She was originally scheduled for a full knee replacement of the left knee with Dr. Corrales in early 2015, but an abnormal pre-surgical electrocardiogram delayed surgery. By the time things were normalized, her wedding date had almost arrived, and a further delay was necessitated.

In the meantime, Casa Colina acquired the Mako robotic system. After her wedding in September 2015, Carole returned to Dr. Corrales, who at that point recommended she undergo a partial knee replacement at Casa Colina rather than a total knee replacement.

“Everything happens for a reason, and we switched from total to partial, and my recovery was great,” she said. “When I knew the procedure was going to be less invasive and that recovery was going to be shorter, I was pumped.”

Carole’s procedure, also lasting about 90 minutes, occurred in June 2016. Like Tim, She was discharged the same day and was walking within hours. She remained comfortable in the days that followed and returned to work six days later. “It was nice; I felt fine – it was amazing.”



Carole Gomez, a resident of Covina, is back on the road and hiking after her partial knee replacement surgery in June 2016.

Carole began outpatient physical therapy within a week after surgery at San Antonio Regional Hospital's Rancho Rehabilitation Center, which is managed by Casa Colina. Close to her workplace, she began therapy twice per week and quickly reduced treatments to only once per week. Since physical therapy ended and her home exercise regimen began, Carole's recovery has been steady. She's now able to hike up and down hills, doing virtually everything she could do before her knee became damaged – and more.

"It is a less-invasive option; there's a faster recovery, and it does allow patients to enjoy a more active lifestyle," said Dr. Corrales, who indicated the robotic technology also enhances physician confidence. "This is particularly important for younger patients. With the Mako partial knee system, there's a very high patient satisfaction rate because we're only replacing a third of the knee; the knee still functions normally, and it feels very natural."

In fact, Carole is so happy with the results that she plans to undergo a partial knee replacement of her right knee in 2017 at Casa Colina, using the same Mako robotic technology.

"Today, I'm doing better than I ever expected," she said. "The pain is gone in my left knee. I'm dancing again; my husband and I go motorcycle riding; we hike, and life is really good. It's even more exciting to know that soon I'll get the other knee done, and I'll be even better than I am now. My experience with Casa Colina was life changing."

Dr. Corrales described both Tim and Carole as wonderful patients.

"The challenge going in was that both patients were relatively young," he said. "They were feeling so good early on that I had to hold them back a little to allow their bodies to heal. Once we did that, both progressed faster and better than either anticipated. I couldn't be happier with their outcomes."