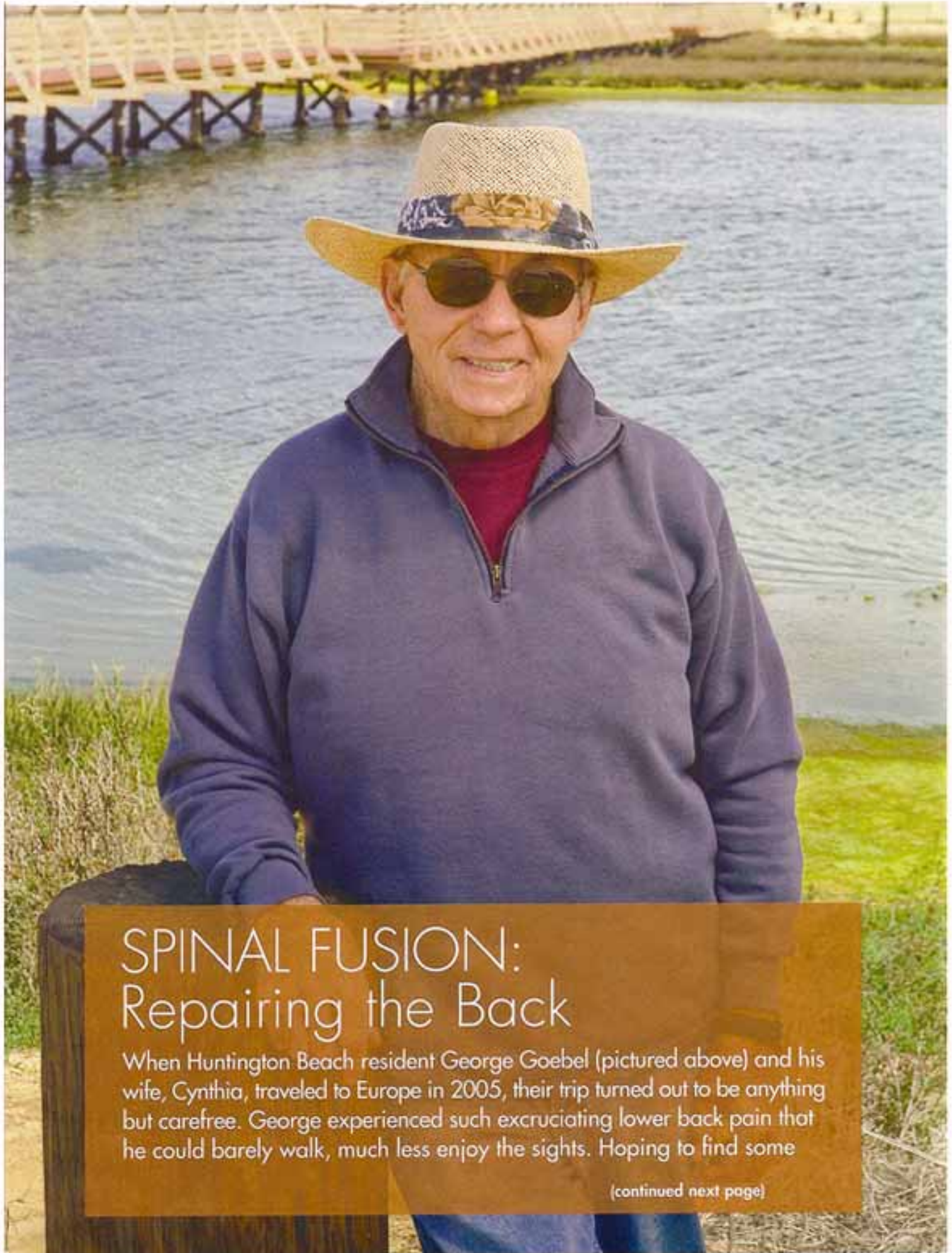


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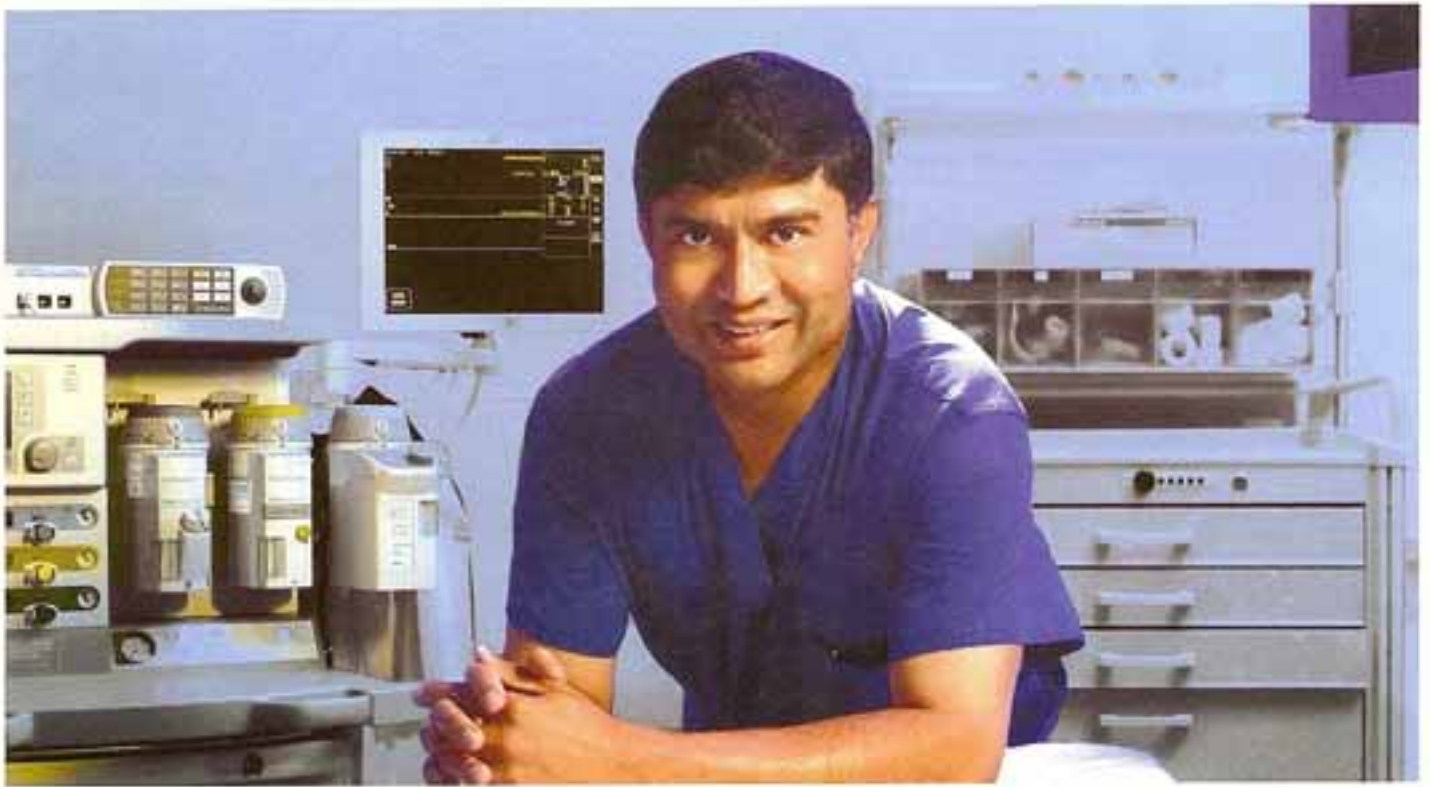
SPINAL FUSION: Repairing the Back

When Huntington Beach resident George Goebel (pictured above) and his wife, Cynthia, traveled to Europe in 2005, their trip turned out to be anything but carefree. George experienced such excruciating lower back pain that he could barely walk, much less enjoy the sights. Hoping to find some

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SPINAL FUSION: Repairing the Back



During spinal fusion surgery, orthopedic spine surgeon Ram Mudiyaam, M.D., uses a new, genetically engineered material called BMP that "welds" vertebrae together faster over time than bone fragments taken from the patient's own hip.

relief, he went to an orthopedist in Bavaria who gave him steroidal injections to get through the trip. "The flight home was okay," says George, 71, who worked in business development for multinational corporations before retiring. "But I had to be escorted off the plane in a wheelchair."

By the time he made it into the office of orthopedic spine surgeon **Ram Mudiyaam, M.D.**, George's life had slowed to a crawl—literally. "I was bent into an 'L' shape and the pain was the most intense I've ever experienced," he says. Dr. Mudiyaam, who had performed hip replacement surgery on George two years earlier, diagnosed the problem as degeneration of the lumbar discs, which are gel-like structures that act as shock absorbers between the vertebrae. "When the discs deteriorate due to injury or age, they can press against nerve roots or the spinal cord, causing extreme pain," says Dr. Mudiyaam. Two of the discs in George's lower back were seriously degraded—a fact that was confirmed by CT and MRI scans, as well as a specialized X-ray called a myelogram.

To alleviate George's symptoms, Dr. Mudiyaam ordered steroidal injections that act on the nerve centers around the vertebrae. Although the injections allowed George to be pain free for six months, subsequent treatments were less effective. In August 2006, virtually unable to move due to his

lower back pain, the retired plastics engineer underwent spinal fusion surgery. Having had a positive experience at Orange Coast Memorial in 1999 and again in 2005, George asked Dr. Mudiyaam to perform his operation there. "The service, the people, the whole hospital are class A," says George.

The goal of spinal fusion surgery is to stabilize the spine after removal of

degenerated discs. Until recently, this required two separate operations. The first involved removing bone fragments from the patient's hip to use as a graft. The second procedure, which followed immediately, entailed removing the damaged disc and implanting the bone-graft material in its place. Over the next few months, the graft generated new bone, which eventually "welded" the vertebrae together. "For some patients, the hip incision was more painful than the spinal surgery," says Dr. Mudiyam.

But now, a genetically engineered powder called recombinant human bone morphogenetic protein (BMP) has eliminated the need to harvest bone-graft material from the patient. "BMP is grown in a laboratory," says Dr. Mudiyam. "It helps the vertebrae fuse together faster than bone fragments taken from the patient's own hip."

During George's surgery, Dr. Mudiyam entered the spine through the back and meticulously removed the two degenerated discs. Then he dipped several collagen sponges into a solution of BMP and packed them inside two tiny titanium cages. Placed in the space where the discs once had been, the BMP began generating new bone growth within days, eventually knitting the vertebrae

together. In the meantime, the cages acted as stabilizing forces, maintaining the correct space between the vertebrae.

Six weeks after surgery, George was taking three-mile daily walks along the beach without pain. "I credit my successful operation to the work of Dr. Mudiyam and the care I received at Orange Coast Memorial," says George. "It was the best."

In the past, a spinal fusion required two separate operations. But now, thanks to recombinant human bone morphogenetic protein, only one surgery is necessary.