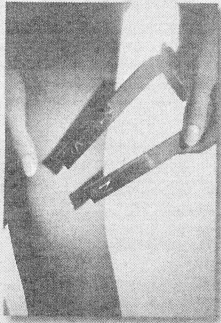


BODY & SOUL

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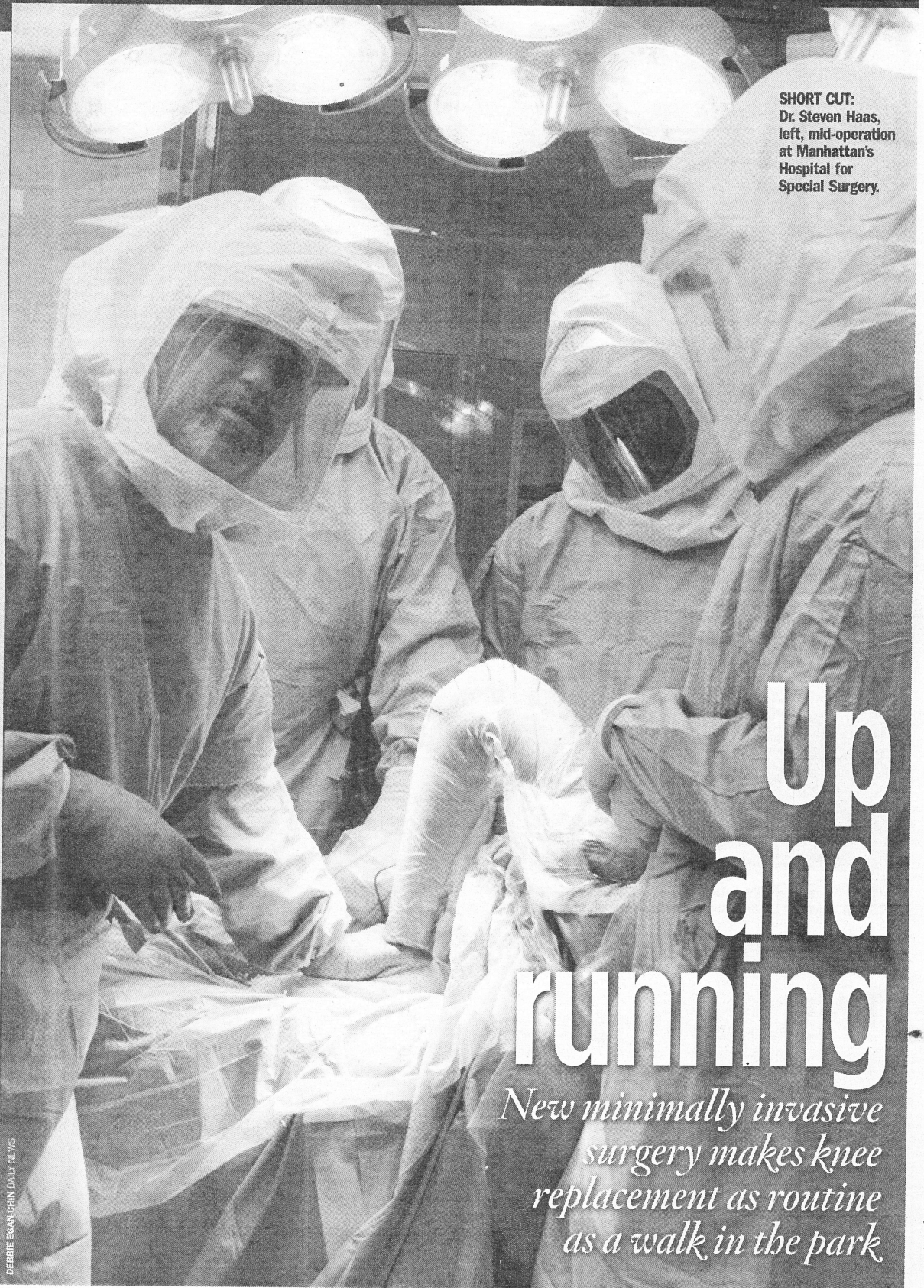
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SHORT CUT: Dr. Steven Haas, left, mid-operation at Manhattan's Hospital for Special Surgery.

Up and running

New minimally invasive surgery makes knee replacement as routine as a walk in the park

DEBBIE EGAN/CHIN DAILY NEWS



JULIA XANTHOS

ONE STEP AT A TIME: Catherine Vanderwaag shows off her new mobility.

A smaller and

BY STEVE DITLEA

His operating room resembles a high-tech wood shop. His surgical tools include saws, chisels and mallets. He is, after all, up against the hard-knocks physics of mass and gravity and friction on cartilage and bone. An orthopedic surgeon and associate chief of knee service at Manhattan's Hospital for Special Surgery, Dr. Steven Haas is one of the pioneers of minimally invasive knee-replacement surgery.

For sufferers from degenerative arthritis of the knee, cartilage can wear away to the point where the leg joint becomes a painful meeting of bone on bone. Removing the damaged surfaces and replacing them with ceramic, metal and plastic can restore a patient's mobility.

This basic operation has become commonplace, with more than 300,000 knee replacements a year in the U.S., but fewer than 20% are minimally invasive. The big difference: a smaller incision requiring less time in the hospital, less healing time at home, and less pain management.

The first of five surgeries Haas is performing today is on the left knee of Catherine Vanderwaag, 54, who suffers from osteoarthritis.

Three years ago, the Long Island resident had arthroscopic surgery, a far less invasive procedure but often just a stop-gap. As a registered nurse on her legs all day, her condition soon worsened. Walk-

ing became a limping, pain-racked ordeal. In the operating room, she is out cold from an epidural anesthetic and a sedative.

CUTTING THE CUTTING

Vanderwaag's spotlight knee, wrapped in antiseptic plastic, is the center of attention for Haas and three nurses and attendants. The members of the surgical team are covered from head to toe in blue "bunny suits," like the ones in computer industry clean rooms. This kind of superclean environment in the operating room, also pioneered at the Hospital for Special Surgery, has drastically reduced the occurrence of postoperative infection.

The incision through skin and muscle is just 3½ inches long, instead of the usual 8 to 12 inches for a knee replacement. The cut is also less destructive, and avoids muscle and tendons above the knee.

To accurately align bone sections

for sawing and resurfacing, Haas uses scaled-down instruments which he designed. The net effect is like trying to reline automobile brakes through a ¾-inch window.

"About five years ago," says the surgeon, "I realized we could gain access to everything we needed through a smaller incision, by moving it around and flexing the knee." In 2002, he began regularly performing the minimally invasive procedure, with the help of his new instruments, manufactured by surgical supplier Smith & Nephew. The less disruptive technique resulted in patients leaving the hospital one day earlier, seeing their postoperative rehabilitation reduced by two months, and needing 40% less pain medication during recovery.

The prospect of a better recovery drew Vanderwaag to minimally invasive knee replacement. "I researched it to see if I was a candidate," she recalls later, "because I have good ligaments and tendons and no muscle tears." The procedure is not for everyone. Patients who are obese or those with serious joint damage due to accident or previous surgeries can only be operated on with standard-size incisions.

A MATTER OF VANITY

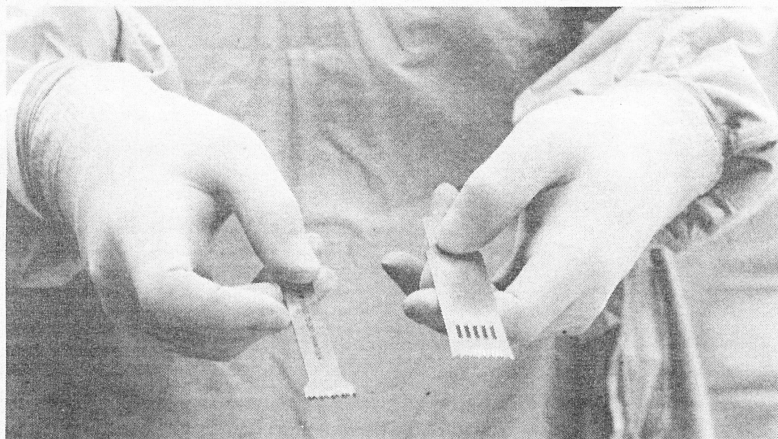
Vanderwaag says that when she was accepted for surgery by Haas, she also looked forward to a less noticeable reminder of the procedure. "Maybe it's vanity," she says, "but I thought a small scar would look nicer."

At 29 minutes into the surgery, Haas has completed prep work, cutting away damaged areas, removing bone chips resulting from arthritis, and repositioning the leg. He begins inserting the artificial implants. There's a white plastic disk to replace a worn kneecap. A silvery upper joint gets cemented to the thighbone, the femur. A white plastic pivot gets attached to the shinbone, the tibia.

Vanderwaag's old knee, swollen and stiff, had lost considerable range of motion; now Haas flexes the leg forward, restoring its full extension. "Beautiful!" he says.

To maintain her newly restored mobility, Vanderwaag will have to work hard. A few hours from now, in the recovery room, her leg will be placed into a continuous passive motion (CPM) machine, which slowly bends and straightens the leg. Nausea from her painkillers will slow her initial progress, but the CPM unit will be the foundation of her first weeks of rehab at home, with four hours a day spent on it to keep scar tissue from stiffening her new knee.

At 54 minutes into the surgery, Haas begins closing up the wound. He sutures the capsule of soft tissue that surrounds the knee. Then he places a few stitches to truss the incision. An assistant completes the process with plastic surgery-style staples, meant to leave a less noticeable scar. For this entire procedure lasting just over an hour, the hospital will



MINIMAL MANIPULATION: Orthopedic surgeon Dr. Steven Haas, right, reinvented a number of tools — primarily making them smaller, as shown at left — to reduce the size of incisions, trauma to the body and length of recovery time and rehabilitation.



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'I'M SORRY I DIDN'T HAVE BOTH KNEES DONE'

For Michael Dinkes, 62, there's only one drawback to his left knee lining being replaced. "I have to build in an extra half hour for check-in whenever I take an airplane," he explains. "The metal in my knee sets off the security gate every time, and I get inspected, sometimes a full body search."

Still, the minimally invasive procedure Dr. Steven Haas performed has its advantages: "When they look at the knee, they can't believe I had the cartilage replaced." A CPA and attorney with 100 employees working in the Empire State

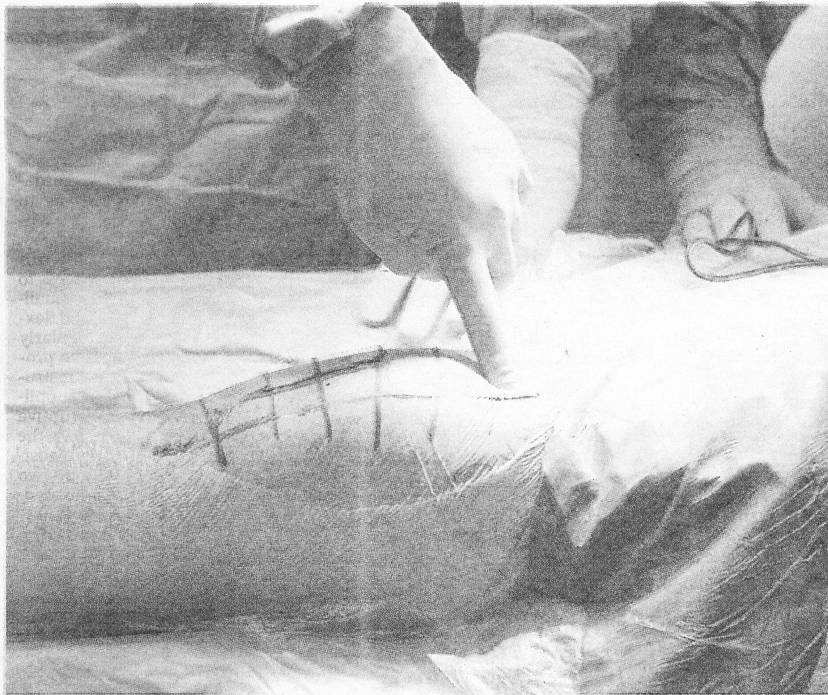
Building, Dinkes no longer has to worry about his knee buckling under him while he plays golf. "It's a godsend," he says. "I have a better range of motion than before the operation." His only regret: "I'm sorry I didn't have both knees done."

"I can kneel in church again," says Elizabeth Phillips, 66, as she counts the blessings stemming from her double knee replacement. Another recovery milestone for her was walking around the Central Park reservoir, a regular part of her exercise regimen before worn-out knees put a halt to that. A 13-time marathon finisher, Phillips has had a long

career as a track and field official and as a promoter of running events for Avon.

Usually, the surgery for two minimally invasive knee replacements is done six weeks apart, but Phillips didn't have time to spare because of a heavy schedule of Olympic events in 2004. So she had both knees done at the same time. "It's like a miracle that I can walk again," she says. Even more miraculous is simply being able to stand, a once torturous experience. "Standing for an hour and a half waiting for the Olympic torch to come by doesn't sound like a great achievement, but it really was."

kinder cut



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bill \$30,000 to \$50,000 depending on its contracts with insurers. Vanderwaag's insurer, US Health Care, picks up the entire tab for her.

On the fifth day after her surgery, Vanderwaag is released from the hospital, able to move with a four-legged walker. A week later, she is up and around with a cane. Her knee is still swollen, after almost constant ice packs throughout her recovery. "It feels like it weighs 500 pounds," she says from home. "Still, I think I'm doing pretty good."

SKY'S THE LIMIT

Six weeks of recovery is usual for Haas' minimally cut patients. After that, running and sports placing too much stress on the knee are to be avoided; otherwise, for new-knee club members, the sky's the limit — literally. From his office wall, Haas pulls a framed photo of one of his patients, Edward Best, 51, pictured against a bright Swiss sky atop one of the Alps, which he climbed eight months after receiving a pair of knee replacements. "It doesn't get better than this" is Photoshopped across the print.

"That's why I love this specialty," says the orthopedic surgeon. "You find yourself improving your patients' quality of life."

Haas teaches his minimally invasive knee-replacement technique at Cornell University Medical College, his hospital's next-door affiliate. Versions of the procedure developed by other specialists are offered in a growing number of New York hospitals, including nearby Lenox Hill and Mount Sinai.

"Five years down the road," Haas predicts, "most orthopedic surgeons will be comfortable with smaller incisions." Their patients should be more comfortable, too.

NEW SURGICAL ERA: Knee-replacement surgery once required an incision of 8 to 12 inches, as demonstrated by Dr. Haas at top left and apparent at top right. The insertion of artificial implants, disks, joints and pivots takes less than one hour.



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