



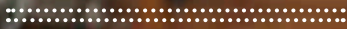
Taming the Tremo

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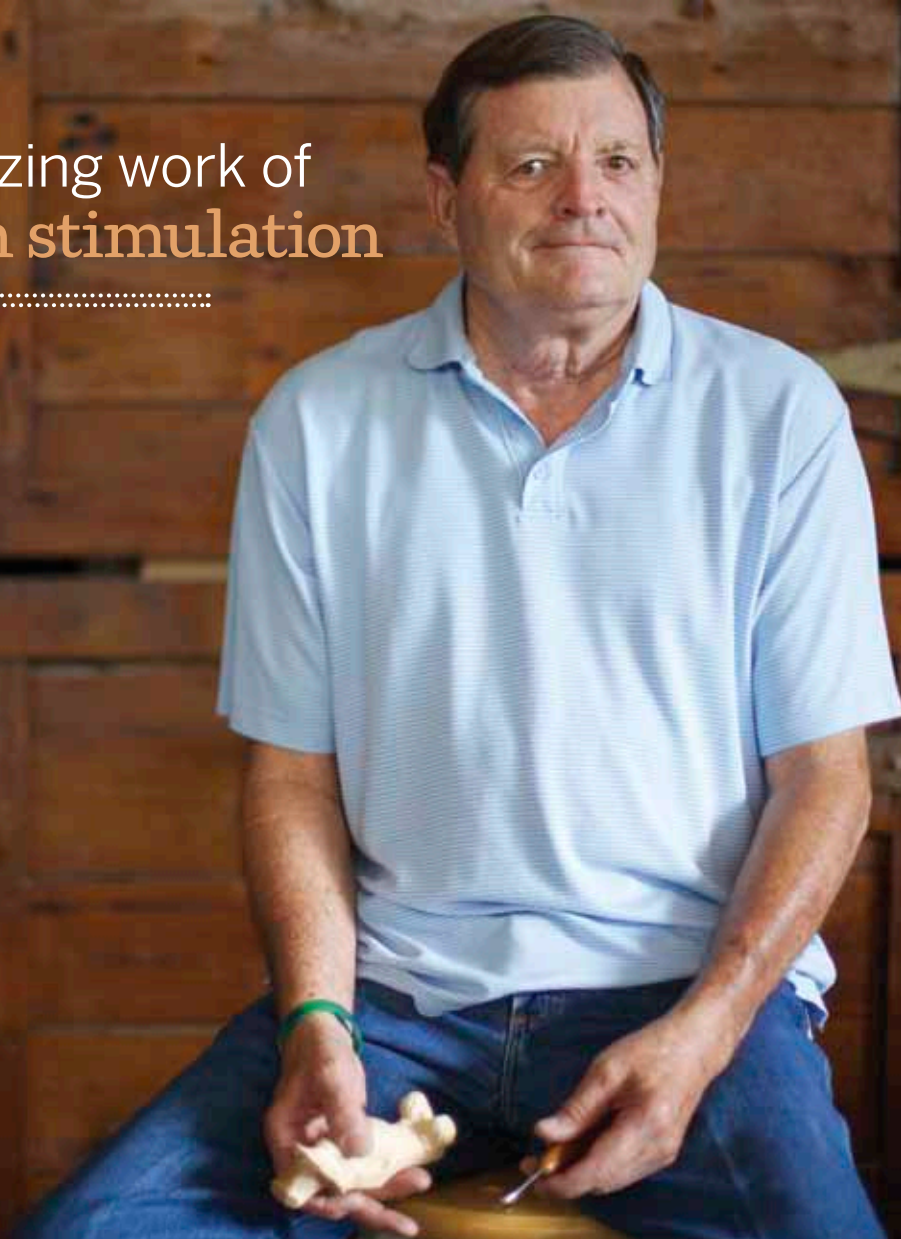
Local resident Donald Polk has had tremors in his hands for 13 years. Eventually, they became so bad that he couldn't hold a spoon. Thanks to DBS, he's back to woodcarving and all his other hobbies.



The amazing work of deep brain stimulation



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It starts as a slight shake

that makes normally neat handwriting messy. Eventually it makes feeding yourself and other daily living activities virtually impossible. Called “essential tremor,” people who suffer from the condition think of it as anything but “essential.”

A disorder of the central nervous system, central tremor affects muscles and causes a rhythmic trembling of the hands, head, voice, legs or trunk. The tremor is worse when trying to write or use a spoon. It closely resembles Parkinson’s disease, although the two are not the same: Parkinson’s also affects balance, walking, muscle tone and a host of other nonmotor symptoms.

Besides the unnerving, uncontrollable shaking, what the two conditions share is the opportunity for amazing outcomes from groundbreaking neurosurgery

performed at Sacred Heart Medical Center & Children’s Hospital.

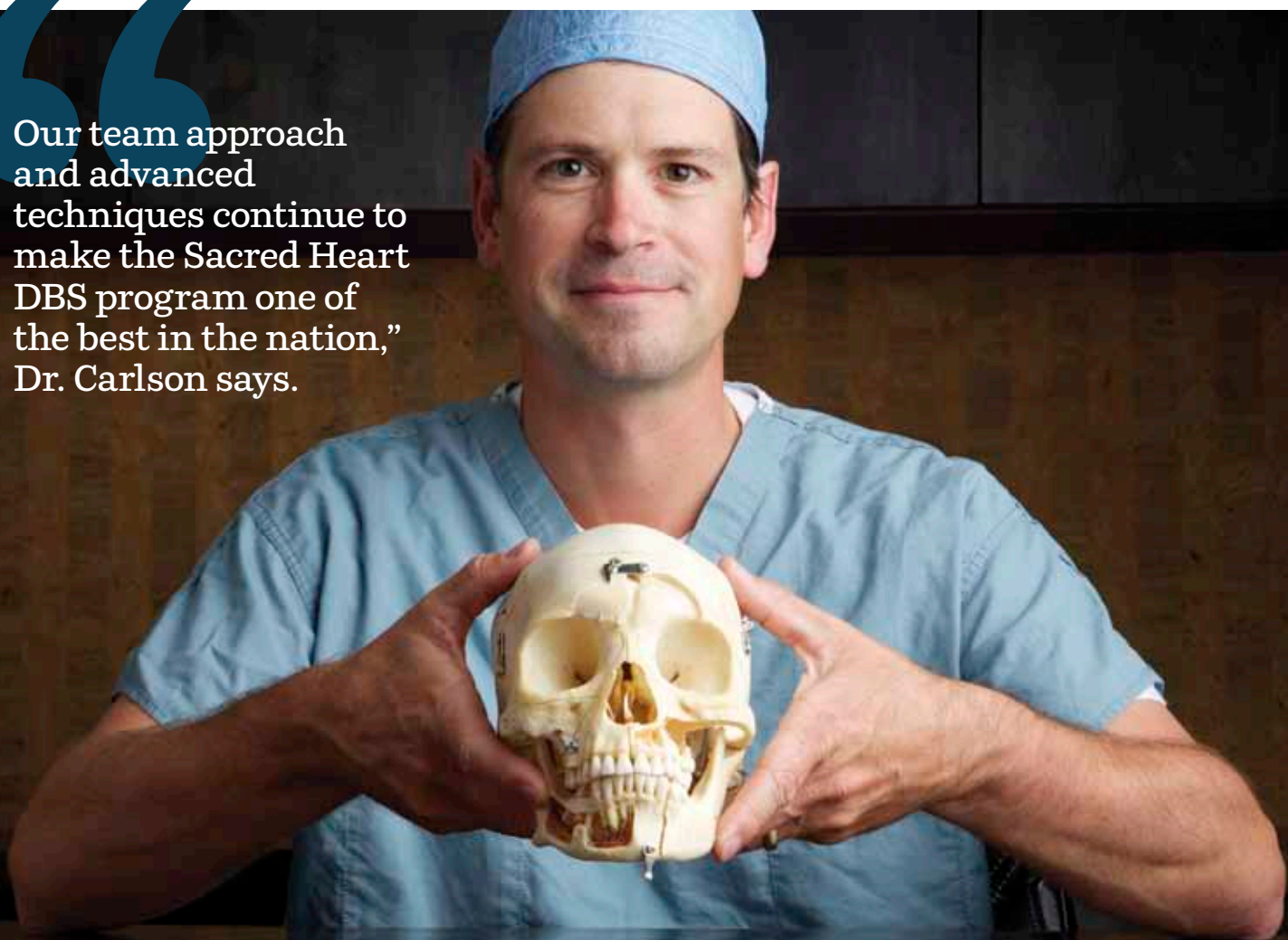
Called deep brain stimulation (DBS), what sets this surgery apart is that it’s performed while the patient is awake—and that it’s providing relief to people with Parkinson’s and essential tumor.

Essential tremor is a reality for about 10 million Americans. About 1 million suffer from Parkinson’s.

Patients of both are primarily adults older than 50, though the conditions sometimes target younger people. Regardless of age, those who have tremors struggle with embarrassment, frustration and isolation.

Medicines help control tremors and allow for an improved quality of life. But—as is the case with many prescription drugs—the side effects can be problematic, or the drugs can lose their power over time.

“Our team approach and advanced techniques continue to make the Sacred Heart DBS program one of the best in the nation,” Dr. Carlson says.



ASK FOR A REFERRAL

If you're suffering with a brain or spine disorder, have your primary care provider refer you to Inland Neurosurgery & Spine Associates. Visit neuroandspine.com to learn more.

A BETTER PATH TO TREMOR CONTROL

DBS is making a big difference for patients, and outperforming medication. “Surgical treatment is incredible,” says Jonathan Carlson, MD, a neurosurgeon with Inland Neurosurgery & Spine Associates. “It almost cures essential tremor and the shaking so that patients can once again eat, speak and go out in public with confidence.”

DBS uses brain mapping to target the precise location where electrical wires should be inserted to provide treatment. This mapping is double- and triple-checked by a computer system that layers images from CT and MRI scans on top of one another to provide 4-D views of the patient's brain. A technologist gives the exact X, Y and Z coordinates to the surgeon who adjusts a metal “halo” by those calculations to fit over the patient's head and serve as a guide for the instruments. The process of acquiring and orienting these images, and placing the stabilizing headgear down to the millimeter, takes longer than the surgery itself.

Through two dime-sized holes in the patient's skull, Dr. Carlson inserts a tiny wire down into the thalamus—an

almond-sized region deep in the brain. As he guides the wire, electrical impulses stimulate the area responsible for the tremors.

The patient is brought out of sedation for the next part of the surgery, so he or she can respond to the surgeon by talking and

following commands. Electrical stimulation is modified as the patient opens and closes a fist and raises and lowers an arm, indicating that the muscles are responding appropriately.

“This is one of the most exciting treatments we have,” Dr. Carlson says. “Deep brain stimulation fixes people—moving them from a state of disability to one of function.”

Even though the patient must go through part two of the procedure—the implantation of small pacemaker-like devices that will control the electrical impulses—he or she has already experienced the miraculous change in steadiness.

AMAZING ADVANCEMENTS IN ANEURYSM TREATMENT

An aneurysm is a bulge in a blood vessel that can rupture. Unfortunately, about 30,000 people every year suffer a ruptured brain aneurysm because there are few to no warning signs, according to the American Association of Neurological Surgeons. Its few symptoms include a sudden and severe headache (described as a thunderclap or a hard blow to the head) along with a stiff neck and vomiting. When this occurs, immediate examination at an emergency room is critical.

Fortunately, there are several treatments for aneurysm. Some, like coiling, can be offered without surgery and help prevent a rupture. Neurointerventional radiologists use X-ray guidance and a catheter run through the artery in the groin up to the brain to wrap a thread around the bulge and block the blood flow.

Avoiding surgery and the risk of blood loss is always the first priority, but when minimally invasive techniques like coiling aren't appropriate, neurosurgeons can offer another approach. Instead of coiling the bulge, they can clip it off.

After the clipping, surgeons use indocyanine green angiography to trace the travel of a special green dye as it moves through blood vessels in the brain. It allows the physician to assess the aneurysm and make certain that blood continues to fill the surrounding arteries normally. This visualization eliminates the need for the patient to undergo additional and more invasive procedures to verify blood flow.

The technology has been around for about five or six years and first came to Sacred Heart Medical Center in July 2012. About 20 patients have benefited from it since that time.

The only surgeons treating aneurysms this way in Spokane are Rasha Germain, MD; Ben Ling, MD; Jonathan Carlson, MD; and Giac Consiglieri, MD, all of Inland Neurosurgery & Spine Associates.

The expert physicians at Inland Neurosurgery & Spine Associates have decades of experience in treating problems involving the brain and back. In 2012 alone, the team performed 1,926 surgical remedies.

LIFE WITH AND WITHOUT TREMORS

Donald Polk enjoys ranch life on his acreage south of Spokane. At 70 years old he isn't ready to slow down. In fact, now that his essential tremors are completely under control, his activity level is picking up.

Thirteen years ago, Polk began noticing a shake, but being a truck driver didn't allow much opportunity for scheduling doctor appointments. Finally in 2006, he was bothered enough by his shaking to see a neurologist and to begin taking the recommended medications. A few years later, he read an advertisement about a seminar Dr. Carlson was hosting on the topic of deep brain stimulation, and he attended.

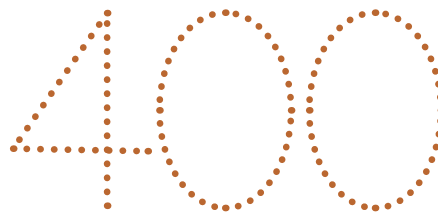
"When I left that meeting, I was ready to go see him and talk about the surgery," Polk says.

Preparation involved three to four months of tests and a number of brain scans. Then Dr. Carlson performed the DBS on the left side of Polk's brain.

"It went so smooth—it's the least painful deal I've ever done in my life," Polk says. "It was easy."

A month later he went back for surgery on the right side of the brain, although many patients undergo both sides in the same operation.

Polk says DBS "has made all the difference in the world in my life." He adds, "I am tickled to death with what they did for me."



Number of patients in
the Spokane region who
have benefited from
deep brain stimulation

Today, Polk is back to his woodcarving—a hobby he had to give up when his hands started shaking so badly. That wasn't all he gave up. He wasn't able to tend to his garden or his horses. He wasn't even able to feed himself because he couldn't hold a spoon.

"I had almost given up on trying to do anything," says Polk. "But I'm back at it, and there's not too much I can't do. The results have been great."

He no longer needs medications for tremors or suffers from high blood pressure. "That's the greatest

thing in the world right there, when you can dump all the drugs," he says.

His is a pretty compelling story but people still ask, "Really? You have to be awake ... during *brain* surgery?"

Polk is used to that question. After all, listening to a surgical team working inside your head is not the same as dental work. But Polk says it's "just not a big deal. It's absolutely painless."

That's because there are no nerve sensations inside the skull—so a patient feels nothing.

More than a year after his DBS surgery, things are still going great for Polk. Not only is he back to carving; he's also remodeling things around the house and working in the yard.

"I feel like a whole new person," he says. ☺