

# LIFE ON THE CUTTING EDGE

By Tom Nugent

**The surgical problem:** How do you remove a potentially fatal brain tumor without causing the kind of massive trauma that usually results from cutting through the skull in order to reach the cancer?

**The surgical solution:** Design an innovative new technique in which the surgeon inserts a tiny laser scalpel through the patient's nose and then maneuvers it (via a flexible tube, or "endoscope") to the affected area of the brain while leaving the skull entirely intact and free of trauma.

Highly regarded brain surgeon Joshua Kouri (CivEngr'95) helped research and implement this powerfully innovative approach to neurosurgery involving tumors located near the pituitary gland.

The process of inventing new surgical methods seems to come quite naturally to Kouri, probably because he was trained first as a civil engineer at CU well before he ever thought of attending medical school and becoming a brain surgeon.

"I do think I was fortunate to get an engineering degree before I decided on medical school," says the 33-year-old Kouri, "because the discipline that's required to solve engineering problems really gives you an edge when it comes to finding new ways to treat brain tumors with surgery.

"As an engineer I've been trained to use some very precise analytical skills to figure out new ways of doing things. And as a brain surgeon I've been trained to explore every possible approach to treating cancer. By putting those two disciplines together, I think I can be a better doctor for my patients

— and that's my whole purpose as a physician who often treats people struggling with cancer."

Writing as the lead author in a groundbreaking article in the *Journal of Neurosurgery* that examined the new surgical technique in detail, Kouri described four cases in which the breakthrough approach had produced successful outcomes for patients, while sparing them the physical trauma so often associated with brain surgery.

So how does it feel helping restore a patient's health with innovative surgical methods? "My goal as a doctor is try find ways to make the lives of my patients a little better," the surgeon responds. "Obviously, if you can remove a tumor without having to cut open the patient's skull, the patient will experience less trauma and a

faster healing time, with very little chance of infection.

"This is a very exciting time to be a brain surgeon because the tools we're using just keep getting better all the time!"

Raised as a third-generation Lebanese-American in the Boulder area, Kouri decided to major in civil and environmental engineering soon after arriving on the CU campus in the early 1990s.

But when he signed up to take an elective course in organic chemistry, he found he was "utterly fascinated" by the complex molecular processes that take place in living cells. "I discovered that I was hooked on biological science," he says. "By the middle of my senior year, I was already applying to medical schools."

Kouri went on to earn his M.D. at the University of Michigan, then spent a year as a National Institutes of Health clinical researcher, before settling down to a seven-year residency at the University of Florida's Department of Neurosurgery, which he recently completed. Having adopted the Sunshine State ("I love tennis and golf — but I never have time to play!"), he plans to launch his own surgical practice in South Florida within the next year.

Ask him to define his career goals, and he'll tell you they're actually quite simple: "I just want to be the best surgeon I can possibly be so I can make a difference in people's lives." 🐘

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*Roving reporter Tom Nugent is based in Hastings, Mich., but travels the country covering science and politics for numerous publications.*

**Joshua Kouri (CivEngr'95), right, combined his CU engineering degree with a medical degree to develop innovative surgical methods. Here he and a colleague perform transthoracic spine surgery.**

