Our muscles work together to help us balance and walk. When disease or injury weakens or damages those muscles, our gait — or walking pattern — is thrown off. That often means limited mobility and less active lives.

For years, pediatric doctors at St. Luke’s Children’s Hospital in Boise had to send children with complex musculoskeletal problems such as cerebral palsy out of state for the best assessment of whether surgery or other treatments would lead to improved mobility.

A unique partnership between the hospital and Boise State University now allows local St. Luke’s pediatric physicians to use the advanced technologies at the university’s Center for Orthopaedic and Biomechanics Research motion analysis laboratory to assess young patients’ movement abilities and limitations.

About 40 motion analysis labs are sprinkled around the country, mostly associated with a medical school-affiliated hospital or a Shriners hospital. But no motion analysis lab existed in Idaho before the partnership.

A Valuable Collaboration

“St. Luke’s Health System is seeking innovative means to provide better treatment for complicated medical problems, and at a lower cost,” said Dr. W. Mark Roberts, medical director for research and medical education at St. Luke’s Health System.

“Our ability to accomplish these lofty goals greatly increases by partnering with an academic institution like Boise State, since basic science advances arising in engineering or the health sciences, for example, can be directly applied to the benefit of our patients and communities we serve,” Roberts said.

At the Center for Orthopaedic
and Biomechanics Research, or COBR, researchers study the mechanical and neuromuscular characteristics of human movement through basic science, engineering, clinical research and education. Over years of advanced research funded by the National Institutes of Health, the U.S. Army and the U.S. Department of Defense, expert faculty researchers have investigated body dynamics and functions of muscle, bone and ligaments.

“Researchers and doctors are addressing similar problems but we are looking at them from different perspectives,” said Dr. Eric Dugan, associate professor of kinesiology and COBR director. “Working together is making us all better at what we do.”

TECHNOLOGY AND EXPERTISE
An expert team of Boise State biomechanists uses high-speed, 3D motion analysis cameras, force platforms and electromyography to evaluate walking patterns of young patients. Based on that assessment, St. Luke’s physicians and physical therapists develop the most effective treatment plan for the patient.

This innovative academic and industry partnership means Idaho children get the most advanced diagnosis available close to home. It is the first partnership that brings hospital patients to the COBR lab, and one of the first that provides the Boise medical community with evidence-based outcomes programs for pediatric orthopedics.

“We are providing a service that may benefit these patients on a very personal level,” Dugan said. “But we also are building relationships in the Treasure Valley between academic researchers and doctors that may lead us to common lines of research. That ultimately will benefit patients, clinicians and faculty.”