Boise State University and St. Luke’s Children’s Hospital

*Pediatric Gait Analysis at the Center for Orthopaedic and Biomechanics Research*
THE CHALLENGE

For years, pediatric doctors at St. Luke’s Children’s Hospital had to send children with complex musculoskeletal problems, such as cerebral palsy, spina bifida or movement disorders that result from brain injuries, out of state for the best assessment of whether surgery or other treatments would lead to improved mobility and more active lives. There are approximately 40 Motion Analysis Labs around the country, most often associated with medical school-affiliated hospitals or Shriners hospitals. No such Motion Analysis Laboratory existed in Idaho, until now.

THE STRATEGY

Boise State University’s Center for Orthopaedic and Biomechanics Research is a partnership between the Department of Mechanical and Biomedical Engineering and the Department of Kinesiology whose mission is to advance understanding of 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 United States Army and the United States Department of Defense, expert faculty researchers have investigated body dynamics and functions of muscle, bone and ligaments. The 8,000-square-foot Center for Orthopaedic and Biomechanics Research Motion Analysis Laboratory facility includes a 3D motion capture system, force plates and other research tools, including custom equipment. Boise State research faculty expertise covers computational biomechanical analyses, human motor activities and exercise protocols.

The St. Luke’s Children’s Hospital and Boise State University’s Center for Orthopaedic and Biomechanics Research have partnered to allow local St. Luke’s pediatric patients access to the advanced technology and analyses techniques available in the Boise State University Center. An expert team of Boise State bio-mechanists use high-speed, 3D motion analysis cameras, force platforms, and electromyography to evaluate young, physically challenged patients’ movement abilities and limitations. Based on the
assessment, the specialized St. Luke’s staff of physicians and physical therapists develop the most effective treatment plan for the patient. Accurate identification of the causes of gait pathology, informed by the cutting-edge lab technology and expert faculty interpretation, greatly contributes to clinical decisions about surgeries, physical therapy, orthotics and pharmaceutical intervention—in Boise.

**THE WIN**

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 academic and research laboratory, and one of the first that provides the Boise medical community with evidence-based outcomes programs for pediatric orthopedics. It not only enhances treatment and improves patient outcome but also may lead to future research in the field of pediatric orthopedics. This unique agreement shows a commitment from both St Luke’s Children’s Hospital and Boise State to improve the quality of specialized health care services to people in the Boise region.