

orthopedics at Dayton Children's

state-of-the-art steps

Dayton Children's is one of the few hospitals in the world that offers patients a **gait and motion analysis laboratory**. The gait lab's state-of-the-art computer technology can identify problems that are not always detectable in a typical clinical exam and offer children more specific treatment options for movement issues with often better results.

A child or teen is typically referred to the gait lab for pain or fatigue when walking. These issues are generally caused by conditions like cerebral palsy, spina bifida, scoliosis, other neurological or muscular diseases or injuries.

In a gait lab study, motion-capture cameras record a child as they step, walk and run on a pressure-sensor mat while wearing reflective markers. The data captured is then rendered into 3D imagery which provides an in-depth look at a child's movements, walking patterns and muscle activity.

"This data, along with a physical examination gauging a child's strength, range of motion, spasticity and balance, can help the team identify specific ways to help improve the child's or teen's ability to walk, step and run," says **Claire Beimesch, MD, pediatric orthopedic surgeon**. "Beyond its typical use, our gait lab is also collecting data for research on patients who have had an ACL reconstruction and for those who are about to have spine surgery using the ApiFix® system."

Dayton Children's has applied to become one of the few children's hospitals with gait lab accreditation through the Commission for Motion Laboratory Accreditation (CMLA). Only 14 other labs in the world have received this prestigious recognition.



elevating orthopedic care



Just like the Wright Brothers, the Dayton natives who changed the world with the airplane, Dayton Children's is pioneering new ways to elevate orthopedic care, making it safer, faster and easier.

Leading the charge for innovation at Dayton Children's is **Michael Albert, MD, chief of orthopedics**. Medical device companies and engineers seek Dr. Albert's input on new equipment, devices and technologies. His designs to provide better care for scoliosis patients have been incorporated into many of the systems in use today across the country.

Under Dr. Albert's leadership, Dayton Children's now offers scoliosis patients several minimally invasive options to correct their curve, including:

ApiFix

ApiFix is a minimally invasive procedure that offers substantial benefits over a traditional fusion surgery to straighten a curved spine, including a smaller incision, faster operation and shorter hospital stay. It acts as an internal brace and naturally expands as the child grows or exercises. Dayton Children's is one of only 28 hospitals offering this procedure.

BandLoc

BandLoc is a specialized polyester implant that improves spinal deformity and correction. The technology was pioneered by Dr. Albert and was used in surgery for the first time in the country at Dayton Children's in 2016.

Meta casting

For children younger than four-years-old, **meta casting** is a non-invasive way to harness the power of their rapid growth rate to correct a curve of the spine in three directions. It's like a plaster vest with an hourglass cut out of the middle. It's replaced every two to four months until the curve reaches an acceptable level, normally one to two years.

Bracing

Like a stiff plastic jacket, **braces** wrap around a child's torso to straighten their spine as they grow. It works best for a certain range of curvature, such as 20-40 degrees.

Scolio-pilates

Dayton Children's is the only children's hospital in the country to offer **Scolio-Pilates**, a treatment option that improves flexibility, strength and quality of life in young scoliosis patients.

fracture and broken bone care – what can wait



To help alleviate the crushing volumes Dayton Children's saw at its main and south campus Emergency Departments in early fall due to COVID-19 and RSV patients, the hospital launched an educational campaign around fracture care. The campaign was designed to push appropriate fracture care patients to the orthopedics clinic versus going to the emergency department.

For patients that don't have an urgent need, like an open fracture or obvious deformity, they are encouraged to make an **appointment online** with a pediatric orthopedics provider or visit the hospital's after-hours orthopedics clinic. **Learn more**