



Rady Children's - A comprehensive system focused solely on children and adolescents.



INNOVATIONS

Correcting scoliosis with spinal tethering surgery

The Division of Orthopedics & Scoliosis at Rady Children's Hospital-San Diego has been pioneers in the basic research and early surgeries for a new method of correcting scoliosis: spinal growth tethering surgery.

More than a decade ago, spine surgeon Peter Newton, M.D., conducted research in animal models to test the safety and efficacy of this procedure, in which a small rope-like cord is attached to the vertebrae along the side of the spinal column to asymmetrically alter spinal growth. Unlike spinal fusion, the surgery corrects the curvature while maintaining the mobility of the treated areas of the spine.

At Rady Children's, Dr. Newton performs spinal tethering surgery in scoliosis patients who have two to three years of remaining growth with curves of more than 45 degrees in the chest region of the spine.

Patients from across the country have come to Rady Children's for this procedure, including a triathlete from Kansas City; her curvature was corrected (see images), and she continues to win races and compete at a very high level.



OUTCOMES

Reducing length of stay for scoliosis patients

The Division leads the efforts of the multicenter Harms Study Group that collects data on the outcomes of scoliosis surgery in patients with idiopathic scoliosis and scoliosis due to cerebral palsy.



The study group has published more than 150 research papers and has used the data to develop best practices. Peter Newton, M.D., Burt Yaszay, M.D., and V. Salil Upasani, M.D., have adopted these practices at Rady Children's, resulting in a reduced length of stay for the study group's patient population -- from an average of 5.3 days to just under four days.

Since nearly all of the Division's scoliosis patients are enrolled in prospective follow-up studies, its team has the most current knowledge on practices that succeed and fail.

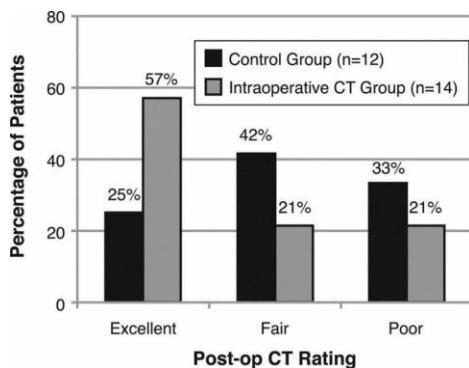


innovation
belongs in every moment

Using intraoperative CT scans for assessment in talocalcaneal coalition resections

A recent study by members of the Division finds that using intraoperative CT scans to assess talocalcaneal (TC) coalition resections may improve the ability to obtain a complete resection.

[Scott Mubarak, M.D.](#), and his colleagues compared the radiographic outcome of patients who received a TC coalition resection with the use of the intraoperative CT scanner to resections completed without imaging assistance. The quality of the resection was improved in the intraoperative CT group, with 57 percent of the patients receiving an excellent rating compared with 25 percent in the control group.

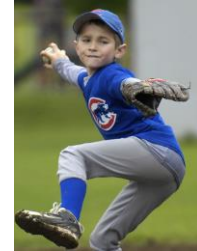


The researchers found that the scans give immediate imaging feedback to surgeons, allowing intervention if residual coalition was identified. They concluded that if intraoperative CT scan is available, it should be considered for surgical treatment in these challenging procedures. [Click here for the abstract.](#)

Evaluating throwing injuries in Little League pitchers

Each year, more than 2.4 million children participate in Little League. Despite the implementation of pitching guidelines, throwing injuries are still a common occurrence and affect a significant number of the pediatric patients seen in the [360 Sports Medicine program](#) at Rady Children's.

There is little science behind the Little League pitching guidelines. As a result, sports medicine physician [Andrew Pennock, M.D.](#), has established the San Diego Pitching Project to better understand the incidence, pathomechanics and risk factors of throwing injuries, with an ultimate goal of establishing better injury prevention guidelines and programs.



The project currently has three ongoing studies: an MRI study looking at the baseline changes in Little League players' elbows, with a particular focus on risk factors for elbow pathology; a study examining the progression of elbow damage that occurs over the course of a Little League season relative to throwing guideline compliance, games played, positions played, pitch counts, and several other variables; and a study using ultrasound to assess changes in both the shoulder and elbow growth plates as a function of the position played and the presence of arm pain.

Along with this research, [Henry Chambers, M.D.](#), [Eric Edmonds, M.D.](#), and [Dr. Pennock](#) are working with professional pitching coaches on developing a throwing injury prevention program that could be implemented across several local Little Leagues.