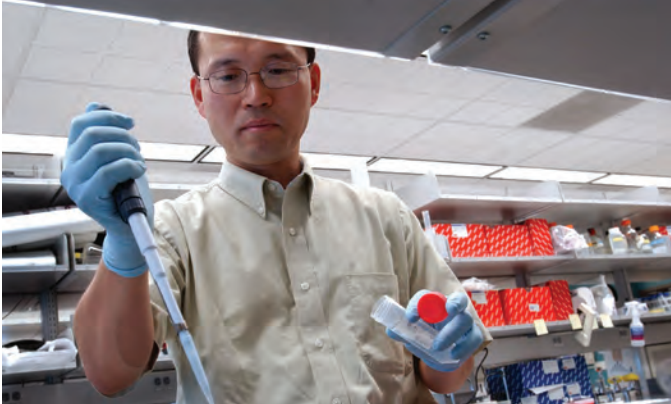


Gaining a Greater Understanding of Complex Orthopaedic Conditions



Our in-house research teams include renowned experts whose discoveries have changed treatment methodologies and improved the lives of countless children coping with debilitating conditions. Shriners Hospitals for Children® is committed to the pursuit of knowledge that improves medical care.

Research with the Potential to Change Lives

Here are some examples of ongoing efforts related to orthopaedics at our official research centers:

- Researchers at Shriners Hospitals for Children — Canada have made many discoveries related to the treatment of osteogenesis imperfecta (OI), as well as its genetic cause. OI is a hereditary connective tissue disorder that is mainly characterized by bone fragility. Researchers at our Canada location have contributed to the understanding that, in the majority of patients, OI is caused by mutations in the two genes that encode collagen, the primary building block of bones. One aspect of current research focuses on the disease-causing mutation in OI type V.
- At Shriners Hospitals for Children — Northern California, Diana Farmer, M.D., is working hard to correct spina bifida and other fetal malformations before birth through the use of in-utero surgery and examining stem cell grafts in experimental models. In addition, Laura Borodinsky, Ph.D., recently obtained novel evidence that folate increases the ability of cells on the two sides of the spinal cord to fuse together to prevent spina bifida, which explains why adding folic acid to the maternal diet diminishes the frequency of spina bifida. Also, Michelle James, M.D., chief of orthopaedics, is developing new tests and procedures to enhance functional recovery

from hand malformations and injuries. If successful, Dr. James' studies will help children who have congenital thumb problems be better able to grip objects.

- The research team at Shriners Hospitals for Children — Philadelphia is dedicated to clinical and laboratory research that advances scientific knowledge around the prevention and treatment of mobility issues resulting from injury or disease affecting the brain. Under the leadership of Peter Crino, M.D., Ph.D., the Brain Development and Plasticity team is making strides in understanding the causes of cerebral palsy (CP) and developing therapies for its prevention and treatment. Laura Goetzl, M.D., is researching the maternal factors that cross the placenta and cause the fetus to develop CP. Once fully developed, these tests can be used to pinpoint the timing of in-utero brain injury that leads to CP, and potentially to monitor the effects of in-utero treatments to reduce brain injury. Tanya Ferguson, Ph.D., is also testing a drug that could be given to pregnant women who experience an episode that puts their baby at risk for CP. And, Sam Lee, Ph.D., is using advanced muscle-stimulating techniques combined with physical therapy to help children with CP improve their ability to use a tricycle for fun and aerobic conditioning.

Committed to Our Mission of Improving Lives

These are just a few of the many studies being conducted at our research centers that will, hopefully, lead to improved lives and improved treatments for children coping with a wide range of orthopaedic conditions. We are proud of the work being done throughout the Shriners Hospitals for Children health care system to add to the worldwide body of medical knowledge and change lives.



Shriners Hospitals
for Children®