

New Strabismus Treatments

There are six muscles in the eye that help move your eyes and focus on the same object. This is what normally happens, but when the muscles do not work together, strabismus occurs.

Strabismus is a disorder resulting in the misalignment of the eyes, and the eyes do not appear to be working together. Untreated strabismus is highly correlated with amblyopia, one of the most common causes of irreversible vision loss in children, and strabismus has a significant impact on the quality of life in children and in adults.

Jolene Rudell, MD, PhD, Assistant Professor of Ophthalmology at the SEI Ratner Children's Eye Center, recently received a generous grant from the Strabismus Research Foundation in San Francisco to investigate using local injections of bupivacaine in the extraocular muscles of patients with strabismus. Bupivacaine is a local anesthetic that has been used to numb parts of the body during or after surgery or other procedures. Its use has been effective in treatment for strabismus.

"The specific mechanism for why bupivacaine works is still unknown," said Dr. Rudell. Her work will investigate why bupivacaine works for strabismus and to understand the biology of effective treatments for patients. Dr. Rudell has been studying the biology of strabismus and extraocular muscles since she was in residency training.

The lack of treatments for strabismus and the highly unpredictable and variable rates of success of more invasive surgeries on extraocular muscles have fueled Dr. Rudell's desire to learn more about the pathogenesis of strabismus in search of treatments for her patients. She believes the lack of knowledge about the pathogenesis of strabismus is a key factor in our inability to treat it effectively. Her career goal is to better understand this disease and to find effective treatments to help patients.

Joining her in this research project will be **Marianna Alperin, MD**, Associate Professor of Obstetrics, Gynecology, and Reproductive Sciences with the



Marianna Alperin, MD and Jolene Rudell, MD, PhD

UC San Diego School of Medicine, who specializes in skeletal muscle biology and is an expert in muscle physiology and biometrics, muscle stem cell biology, and muscle disease. Dr. Rudell will also be collaborating with Joel Miller, PhD, Director of Research and Senior Scientist at the Strabismus Research Foundation, and Linda McLoon, PhD, Professor, Department of Ophthalmology and Visual Neurosciences at the University of Minnesota Medical School.