

# Health *for* Life

PRESENTED BY KERN MEDICAL

Fall 2018

How a family found  
**courage**  
in crisis



game  
changers

latest procedures  
and technology

meet  
the team

neurosurgeons bring  
expertise to the community

the  
**NEURO  
ISSUE**

concentrating on  
what's in our heads



# EPILEPSY

## WORKSHOP + SOCIAL



**DATE**  
Saturday, December 8, 2018

**TIME**  
10:00am - 2:00pm

**LOCATION**  
Marriott Convention Center  
801 Truxtun Avenue  
Bakersfield, CA 93301

**RSVP**  
800.564.0445  
EndEpilepsy.org/Bakersfield

### LEARN AND CONNECT WITH OTHERS IN YOUR QUEST TO BE SEIZURE FREE

Learn about advances in diagnosis and treatment, dietary therapies, new devices, safety, lifestyle choices and wellness.

- Q+A time to ask your questions
- Become a better advocate
- Find resources
- Learn about research opportunities
- Translation services will be available
- Lunch will be provided
- Advanced registration is required
- Fee: \$10/person (scholarships available)



We hope you enjoy this edition of Health for Life. Comments about the publication can be directed to the Marketing & Communications Department:

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FALL 2018

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Health for Life is published by Kern Medical as a community service. It is not intended to give medical advice. If you have questions about medical content, or are seeking personal medical advice, please contact your health care provider.



# creating a healthier community

As Kern Medical continues to be a leading provider of medical care in Kern County, we strive to set ourselves apart by offering state-of-the-art technology, the latest procedures, and a level of care that may not be readily available in every medical center. In this neuro-focused issue of *Health for Life*, you will learn more about our partnership with the USC Epilepsy Consortium. This unique relationship positively impacts our patients' care because of the expanded list of services that we are able to offer. This creative strategy is just one example of our commitment to our community.

In further support of our community's needs, we are proud to announce that we will receive \$3 million for the Valley Fever Institute at Kern Medical from the State of California. After decades of caring for Valley Fever patients, the Valley Fever Institute will now have the funding needed to proactively expand our efforts and aggressively tackle ways to better treat, prevent and cure Valley Fever.

The Valley Fever Institute at Kern Medical is located at the epicenter of Valley Fever cases and in the heart of California. The funding is crucial for building a foundation to increase patient care, expand research efforts, and share research throughout all areas of the State of California. Countless patients and families will benefit from this funding to support the Valley Fever Institute at Kern Medical.

We are grateful to both Senator Jean Fuller and Assemblyman Vince Fong for championing this critical funding that will remain right here in Kern County, benefitting our local community and beyond. Senator Fuller has been tireless in her commitment to helping patients suffering from Valley Fever and leads as an advocate for Valley Fever awareness. Assemblyman Fong is instrumental in his support of Kern Medical and continues to focus on improving the health of our community. We would also like to thank Assemblyman Rudy Salas for coauthoring the request and for his efforts to combat Valley Fever.

This funding will be the catalyst to expand the Valley Fever Institute at Kern Medical and further supports its mission to increase education and awareness for the public, patients and health care providers, provide the best patient care available, and promote research that includes epidemiology, clinical drug development, prevention, immunology, and immunizations. We feel incredibly fortunate to be able to offer all of Kern Medical's exceptional services and programs to the Kern County area in order to improve the health and wellness of our community.

**Russell Judd**  
CEO, KERN MEDICAL



in pictures

# Creating a Sense of Community

Kern Medical is passionate about providing the best medical care to the South Valley, and we're also passionate about supporting others with worthy causes. As a community-minded organization, Kern Medical staff and employees love to participate in events and fundraisers that benefit our area.



**Pictured clockwise from top left:**

A) "Bump for Brains" was one of two teams representing Kern Medical at the Kern County Epilepsy Society mud volleyball tournament. B) Senator Jean Fuller smiles during the unveiling of the Valley Fever Institute at Kern Medical. C) Kern Medical's Maternal-Child Team had a booth at the Breastfeeding Coalition, held at the Plaza Mall. D) The Valley Fever Walk at the Kern County Museum drew a large, supportive crowd from Kern Medical. E) Dr. Royce H. Johnson served as a panelist at the North of the River Chamber of Commerce Views on the Valley conference, speaking about advancements in Valley Fever treatment.





# Homelessness is Not Hopelessness

Contributed Content by  
**Louis Gill**

# e

very child should have a roof over their head, clean clothes, and a full belly. For mothers and fathers who have lost their homes to a traumatic event or because of poverty, Bakersfield Homeless Center (BHC) is there to help.

At BHC, families find compassion for their situations, stability in their basic needs, and support on the road to self-sufficiency through transitional services, on-site licensed child care, and after-school programs, as well as housing and job placement assistance.

Most families come to BHC hungry, having been vulnerable to crime, disease, and the elements, without another place to turn. Many are desperate for warm or cool shelter, nutritious food, and a place to regain adequate hygiene. BHC starts by meeting basic needs of food and shelter with three meals a day and a 174-bed facility. Once basic needs are met, in-house referral services meet medical, legal, and emotional needs. These services include drug and alcohol counseling, medical, dental, and mental health care, child care, and after-school programs. Housing and job placement assistance are also made available.

On average, more than 100 children stay the night at BHC, sleeping warm, snug and well-fed. Unique to BHC is the Discovery Depot Child Care Center, the first licensed child care center in California located at a homeless shelter. Discovery Depot allows parents to know that their children are taken care of while they pursue educational or career opportunities critical to achieving independence and permanent housing. For school-age children, the Champ Camp after-school program makes learning fun and helps keep children in difficult circumstances from falling behind in school. Champ Camp has helped nearly 2,000 children increase grades and

improve their self-esteem.

The ability to provide for oneself is critical to obtain and maintain housing. With that in mind, BHC created the Job Development Program to contract labor crews with public and private companies. Since 2009, more than 250 people have gone through BHC's Job Development Program, resulting in more than 470 individuals moving into their own homes and 95 people moving on to permanent jobs.

With compassion and the right tools, homelessness can be a temporary and infrequent occurrence in our community.

Louis Gill,  
CEO of Bakersfield Homeless Center



Last year the  
Bakersfield  
Homeless Center  
provided  
**170,000**  
meals for  
individuals in our  
community.



# A SOCIETY OF *Support* FOR EPILEPSY PATIENTS

Contributed Content by  
Douglas Valdez

**L**earning to live with epilepsy can be a trying experience, especially if you don't have all of the resources or information to help you take control of the condition. It is easy to feel hopeless, but the Epilepsy Society of Kern County aims to provide hope, stability, and support to those with epilepsy.

The Epilepsy Society of Kern County opened its doors in 1954, when Bakersfield resident Georgia Johnson and 14 others met in her home for the organization's first support group. Since then, the Epilepsy Society has worked to advocate for and empower individuals with epilepsy and other seizure disorders through education, personal counseling, and support groups.

Everyday, people all around Kern County walk through the Epilepsy Society's doors and receive the help they need. A team of employees and volunteers meet with families, caregivers, and those trying to figure out how to navigate a life with epilepsy.

The Epilepsy Society offers a variety of programs that further the Kern community's knowledge of the condition, including epilepsy management in schools, health professional training and development, and epilepsy man-

agement for caregivers, as well as the Specific Assistance Fund. The Specific Assistance Fund provides the financial means to purchase medication, cover transportation costs, and assist with any other financial needs that arise as a result of epilepsy.

Support groups offer guidance not only for individuals with epilepsy or other seizure disorders but also for friends, families, and caregivers. These groups provide comfort and common ground to those struggling with the condition. Personal counseling helps answer questions about available treatment options, seizure triggers, or even the different types of seizures that exist.

On top of its advocacy work, the Epilepsy Society hosts an annual mud volleyball tournament each summer to fundraise for the organization. Teams from all over Kern County can sign up for a chance to move up the brackets and take first place. In the past, this event has brought in more than 1,200 participants, helping fundraise a majority of the non-profit's income. Keep an eye out for the tournament's return next June!

## What is Epilepsy?

Epilepsy is a neurological disorder that occurs when the brain's impulses are not working properly. The normal electrical messages that the brain sends back and forth tell the body how to behave. When these messages misfire in such a way that disturbs the electrical activity on the surface of the brain, the result is epilepsy. Individuals can experience epilepsy in different ways.

**If you have any questions, contact the Epilepsy Society of Kern County at (661) 634-9814 or visit [www.epilepsysocietyofkern.org](http://www.epilepsysocietyofkern.org).**



Douglas Valdez, Office Manager, Epilepsy Society of Kern County | [eskszo@aol.com](mailto:eskszo@aol.com)







Kiley Norvell STAFF WRITER

Larry Smith's accident rattled his community to its core—but his recovery inspired everyone he knew.





**L**arry and Cynthia Smith have been together for 13 years. Cynthia was swept off her feet by this rugged, charming man, and they knew right away they were soulmates. They were married nine years later, and have two children: a daughter, Emma, and a son from Larry's previous marriage, Darrion.

Over the years, Larry developed a routine of regularly calling to check in, letting Cynthia know where he was and where he was headed. It was rare for her not to hear from him.

On February 25, 2017, Larry called from the mall to let Cynthia know he was headed to a barbecue at a close friend's house on his motorcycle. He was supposed to call or text when he arrived, but she never heard from him. She called to check in, but he did not answer. She thought nothing of it at first, assuming he was enjoying time with his friends. Later that night, however, she received a call from one of his friends asking where he was.

Cynthia wanted to panic, but she jumped into action. Cynthia's sister, Denise, is an ER nurse at Kern Medical, and had always told her to call Kern Medical if she was trying to find someone



A

because it is the only trauma center in the area. Remembering this advice, she called Kern Medical, asking if her husband was there. The nurse put her on hold to check—it was the longest wait of Cynthia's life. Unfortunately, all of her worst nightmares came true. Larry was severely injured, and she needed to go to Kern Medical immediately.

#### AWAITING ANSWERS

Cynthia could no longer hold back her panic. The sense of dread overwhelmed her, and she froze. All it took to bring her back to reality was a questioning look

**From Top:** A) Larry and his wife Cynthia pose with their daughter, Emma, and Larry's son, Darrion. B) Larry receives a visit from his brother, who was one of his biggest supporters during his hospital stay—and to this day. C) Larry went through extensive therapy during his recovery. He had to relearn basic tasks, like standing up, walking, and talking. D) Dr. Liu and Larry smile for a photo. The plate had not been implanted into Larry's skull yet, so you can clearly see the depression on the left side of his head. E) Emma helped Larry with his physical therapy so that he could come home quickly. He was able to accomplish his goal to make it home for her birthday.

“I couldn't believe that this had happened—I had just spoken with him.”



from their daughter, and she began assuring herself and everyone around her that Larry would be okay.

Cynthia, her parents, and her daughter, Emma, all sat in silence during the 30-minute drive from Delano to Bakersfield. Cynthia struggled to appear calm as she called Larry's mother and sister to let them know about the accident. They did not know any details yet, just that Larry was at Kern Medical and he was alive.

They had been in the waiting room for a couple of hours when the neurosurgeon, Dr. Charles Liu, told them that Larry had suffered a traumatic brain injury and had survived surgery. He was in critical condition because his brain was still extremely swollen, but they had performed a craniotomy to help relieve pressure.

When Cynthia and Larry's mom were finally able to see him, he was connected to a ventilator and his head was wrapped in bandages. The visible parts of his face were distended beyond recognition. Larry's brain was exceptionally swollen and there was some bleeding during surgery. The next few days would be crucial, as Kern Medical staff would have to monitor intracranial pressure.

Later, they would learn that the accident happened just minutes after he called Cynthia. They learned that Larry's bike had hit a patch of gravel, causing his wheel to slide out and the bike to slam him into the ground. But looking at



Larry in his hospital bed, they only knew that he was clinging to life, unsure if he would ever wake up.

“I couldn't believe that this had happened—I had just spoken with him. It seemed surreal,” said Cynthia. “I told his mom that we have to focus on the fact that he's alive. I told Larry, ‘You're still here, so it's time to start fighting.’”

#### A SOCIETY OF SUPPORT

Because his single mom was repeatedly taken advantage of by unethical mechanics when he was a kid, Larry decided to become a mechanic—but Larry vowed to be an honest, helpful, and knowledgeable mechanic, giving back to his community through his work.

It is no surprise that Larry is well-known in the small, tightknit town of Delano, both as the owner of his mechanic business, Unique Smog & Auto Repair, and as a steward in the community—he is an active board member of the Delano Chamber of Commerce and a

consistent contributor at his church, First Assembly of God. Larry makes it his personal mission to be involved in as much as possible in his hometown. He never thinks twice about helping others—it's in his nature.

When the people of Delano learned about Larry's accident, they immediately banded together to help the man that had always helped them. Larry's brother took an emergency leave of absence from his job so that he could run the shop, while his sister ran the office. A total of five fundraisers were held in Delano to help cover Larry's hospital bills and expenses, but people still came by the shop regularly to drop off food and donations. Larry's former mother-in-law also visited and cooked for his family regularly.

#### THE CHALLENGES OF RECOVERY

On March 9, 2017, after being in the ICU for two weeks, Larry began to wake up. There were no guarantees that he



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“Against all odds, the only lasting damage from his accident is a scar.”

would remember anything about his life, but he knew his name and that he had been in an accident. He immediately asked for Cynthia by name. Then, he started asking for his kids.

From there, the recovery began. Larry had to relearn how to sit up, stand, walk, talk, and eat. He had no mobility in his left arm for two weeks. Every day, he attended physical therapy, occupational therapy, and speech therapy at a rehabilitation therapy center in Orange County. He was determined to attend his daughter's birthday party in May, and made it home just in time, in the last week of April.

Larry was without part of his skull because of potential swelling for six months, and had to wear a helmet at all times, much to his displeasure. He may have been home, but he needed a lot of help—his balance was still off, and he needed assistance to shower, get dressed, and feed himself.

In June, Larry's health suddenly declined. He lost mobility in his left hand again and slurred words he had mastered before. Dr. Charles Liu, neurosurgeon at Kern Medical and director

of the USC Neurorestoration Program, told them not to worry. The skin on Larry's scalp was pressing on his brain, which had exacerbated his problems. They scheduled surgery for a Friday in September to install a titanium mesh to protect his brain. The Sunday following his surgery, Larry had regained the use of his left hand and was speaking more clearly.

“Our team is one of the most experienced with cranial reconstruction surgeries in the world,” said Dr. Liu. “We felt confident that Larry would regain his function after the surgery.”

Larry was able to return to his mechanic shop after 9 months of recovery. He could not work on cars yet, but he was back in the office, running his business. Today, he's more involved in his community than ever, working with the Chamber of Commerce, local clubs, and his church to make a positive impact in his community. He has no memory loss and no decrease in motor skill function. Against all odds, the only lasting damage from his accident is a scar.

“Dr. Liu, Dr. Chen, and their team were pillars for our family, calm and stoic



through the entire process, and I can't think of a nurse that wasn't fantastic,” said Cynthia. “Everyone at Kern Medical believed in Larry, and that made it so easy for us to believe in them.”

medicaladvances

# ENDOSCOPIC VENTRICULOSTOMY



## CREATING A BYPASS ON CEREBRAL HIGHWAYS

Kiley Norvell STAFF WRITER

Kern Medical is not just a resource for Kern County—we serve the entire Central Valley, offering expert care in critical medical situations. This rang especially true for a patient of Dr. Joseph Chen, Chief of Neurosurgery at Kern Medical. This patient travelled to Bakersfield from Tulare County based on a referral from their neurosurgeon, who recognized them as a candidate for a special procedure. The patient had been diagnosed with a tumor deep within the brain stem and had been receiving treatment in their local community. This tumor caused a condition known as hydrocephalus.

Hydrocephalus is a condition where fluid builds up in the ventricles of the brain, often caused by an obstruction that prevents proper fluid drainage. This fluid causes excess pressure, which can result in swelling, brain damage, and often, severe pain and discomfort for the patient. Hydrocephalus can be fatal if

left untreated.

In some patients, the blockage exists in the lining of the skull, which is normally treated with a shunt, a surgical insertion of a medical device that allows for drainage. In this patient, the tumor was blocking the cerebral aqueduct, which is a very narrow passageway that typically allows spinal fluid to flow through the brain. This type of hydrocephalus is unique because it can be treated with an endoscopic insertion, which creates another passageway for the spinal fluid to flow through the brain.

In this specific patient, the procedure performed was an endoscopic third ventriculostomy, which means an endoscope was inserted at the base of the skull into the third ventricle of the brain to create a new passage for cerebrospinal fluid. Dr. Chen is known as one of the few physicians in California who can provide this procedure. It can be a permanent

solution for this type of hydrocephalus blockage.

“The goal of the procedure is lasting, definitive treatment of the hydrocephalus, regardless of other problems,” said Dr. Chen. “Though it will not in and of itself cure a brain tumor, it significantly reduces risk for the patient.”

If this patient had not come to Kern Medical, this patient would likely have been treated with a shunt, but the endoscopic third ventriculostomy is a far more effective form of treatment for this particular type of hydrocephalus and does not require the implantation of a medical device. Normally, patients would have to go to San Francisco or Los Angeles to receive this level of treatment, but fortunately, the team at Kern Medical was able to provide this type of specialized expertise right here in Kern County.





# Sparkling Innovation

in the South Valley

KERN MEDICAL BRINGS LEADING NEUROSURGEONS TO KERN COUNTY SO PATIENTS CAN RECEIVE EXCEPTIONAL CARE CLOSER TO HOME.

Kiley Norvell STAFF WRITER

In an effort to provide the best possible care for patients in Kern County and the surrounding areas, Kern Medical has developed a special program for maximizing resources and bringing expertise to the area instead of sending patients to Los Angeles or San Francisco for state-of-the-art care. The partnership between the neurosurgery division at Kern Medical and the University of Southern California Neurorestoration Center of the USC Keck School of Medicine delivers key subspecialty care to patients in need of expertise previously unavailable to them in this area.

This team of neurosurgeons is led by Dr. Joseph Chen and includes Drs. Charles Liu, Jonathan Russin, Brian Lee, Brian Oh, and Vivek Mehta from USC.

Local resources to keep patients close to home, while maintaining access to subspecialty physicians and facilities that are typically found in major academic medical centers.

Compared to typical partnerships with academic centers, the USC physicians have a unique goal to provide subspecialty consultation and surgical services locally as much as possible—meaning these experienced physicians are on staff at Kern Medical and provide coverage 24 hours a day, 365 days a year for emergencies, trauma, and inpatients, as well as seeing patients in outpatient physician offices at both the hospital campus and at 9330 Stockdale Highway.

Many of the neurological services offered at Kern Medical, such as epilepsy surgery and specialty neurotrauma procedures, are only available through our unique partnership with these neuro-

surgeons that are also the staff the USC Keck Medical Center. These neurosurgeons are committed to extending the highest level of care to patients in the southern Central Valley.

## SERVICES

**1. Neurotrauma** – A craniotomy, which is the removal of part of the skull to expose the brain, is a common procedure used to treat traumatic brain injury, spinal trauma, and intracranial pressure management.

**2. Complex spinal neurosurgery, including neuro-navigation-guided instrumentation** – This service is primarily for degenerative, infectious, neoplastic, and traumatic spine pathology.

**3. Brain tumors and neuro-oncology** – This

area focuses on the microsurgical resection of complex brain tumors, including gliomas, metastatic tumors, meningiomas, skull-base tumors, and pituitary tumors.

**4. Epilepsy surgery** – To treat epilepsy, doctors at Kern Medical use microsurgical craniotomy and stereotactic methods for invasive EEG studies and resection of seizure focus, as well as neurostimulation (including vagus nerve stimulation and responsive neurostimulation).

**5. Functional and stereotactic surgery** – These are minimally invasive surgery techniques that treat ablations, biopsies, movement disorders, and epilepsy, among other procedures that strategic stereotactic planning.

**6. Cerebrovascular surgery** – This typically involves a craniotomy specifically for brain aneurysms and arteriovenous malformations.

**7. Neurosurgical pain management** – This type of neurosurgery is intended to help treat pain using nerve blocks, ablation procedures, neuromodulation, and spinal cord stimulation.

**8. Endoscopic neurosurgery** – This is another minimally invasive surgery technique that utilizes small incisions and natural openings, primarily to treat skull-base and intraventricular lesions.

**9. Hydrocephalus** – Hydrocephalus, or an accumulation of fluid in the brain, requires the insertion of ventriculoperitoneal shunts for obstructive and communicating hydrocephalus and endoscopic third ventriculostomy.

## MEET THE TEAM

**Joseph Chen, M.D., Ph.D.** – Dr. Chen graduated from Johns Hopkins University and received his M.D.-Ph.D. at NYU. He trained in neurosurgery at the USC-affiliated hospitals. He then worked in the Southern California Kaiser Permanente system establishing one of the highest-volume stereotactic radiosurgery programs. He is a Clinical Associate Professor of Neurological Surgery at USC. At Kern Medical, he is Chief of Neurosurgery and leads the efforts in acute care neurosurgery, neurotrauma, neuro-oncology and brain tumors, and neurosurgical pain management. He is also an expert in endoscopic neurosurgery.

**Charles Liu, M.D., Ph.D.** – Dr. Liu graduated from the University of Michigan and received his Ph.D. from Rice University. He then attended medical school at Yale University before completing his neurosurgical training at USC. He is currently a Professor of Neurological Surgery and Neurology and is the Director of the USC Neurorestoration Center. He has led the establishment of the USC Epilepsy Consortium, a partnership of healthcare delivery entities that aim to provide equivalent levels of epilepsy care irrespective of socioeconomic and geographical circumstances. The Kern Medical Epilepsy Center was established in 2017 and is the first and only adult comprehensive epilepsy center between Los Angeles and Sacramento. He leads a broad spectrum of research programs that aim to restore neurological function after injury. At Kern Medical, Dr. Liu coordinates the efforts of the USC subspecialty physicians and also leads the epilepsy surgery program.

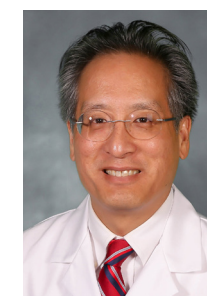
**Jonathan Russin, M.D.** – Dr. Russin received his medical degree from the Uni-

versity of Medicine and Dentistry of New Jersey and his neurosurgical residency training at USC. He then completed a cerebrovascular fellowship at the Barrow Neurological Institute. He is an Assistant Professor of Neurological Surgery and Director of Cerebrovascular Surgery at USC, as well as Associate Director for Microneurosurgery of the USC Neurorestoration Center. At Kern Medical, Dr. Russin coordinates the cerebrovascular and skull-base neurosurgery programs.

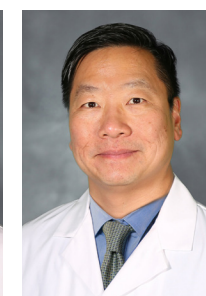
**Brian Lee, M.D., Ph.D.** – Dr. Lee graduated from medical school at USC and received his Ph.D. from Caltech. He then completed his neurosurgery residency at USC before receiving fellowship training at UCSF in functional-stereotactic neurosurgery. Dr. Lee is appointed as Assistant Professor of Neurosurgery and Director of Functional and Stereotactic Neurosurgery at USC. He is also Associate Director of Stereotactic Neurosurgery for the USC Neurorestoration Center. At Kern Medical, Dr. Lee coordinates the functional and stereotactic neurosurgery programs.

**Bryan Oh, M.D.** – Dr. Oh received both his baccalaureate and medical degree from Stanford University. He completed his neurosurgery residency at USC before serving as the Director of Neurotrauma at University of Texas, Houston. He then returned to California to join USC. Dr. Oh is an expert in spinal neurosurgery and neurotrauma.

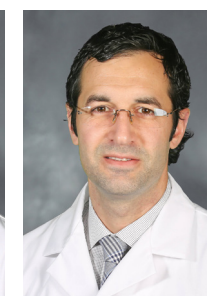
**Vivek Mehta, M.D.** – Dr. Mehta attended UC Irvine and received his medical degree from Johns Hopkins University. He then completed his neurosurgery residency at USC. Dr. Mehta is involved in all of the key neurosurgical efforts of the group. Dr. Mehta is an expert in cranial neurosurgery and spinal neurosurgery.



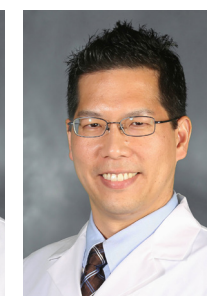
Dr. Joseph Chen



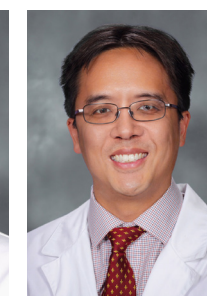
Dr. Charles Liu



Dr. Jonathan Russin



Dr. Brian Lee



Dr. Bryan Oh



Dr. Vivek Mehta



# Concussion Prevention & MINDFUL EXERCISE

Written by Ryan Beckwith & Tyler Saso, Founders of A3



The latest research and evolving medical technology has shown health professionals and the masses alike that concussions are more prevalent than we thought, and repeated concussions can be extremely dangerous. While it's commonly known that sudden trauma, or repetitive, mild trauma to the head may result in a concussion, blows to the body from body-to-body contact and falls can result in head injury by jarring the brain as well.

A concussion is a type of brain injury resulting in a short-term loss of brain function. This altered state of function and resulting symptoms can vary from

person to person, but can happen when the brain is essentially shaken against the skull. Studies show that the altered state of brain function is largely due to lesions that develop in the brain tissue and alter brain metabolism. The brain has a remarkable ability to heal itself, but cognitive exercises can speed up that process and promote recovery.

### Preventing Brain Injuries

The brain creates and recreates neural pathways to allow people to execute day-to-day tasks, as well as more cognitively and athletically challenging tasks. While someone is in a concussed

state, these brain-based operations become very difficult and more energy-expensive, often leading to multiple symptoms that are not initially attributed to a simple body blow or light head bump. Some symptoms may not be recognized or reported for days or weeks following an accident (i.e., headaches, blurred vision, brain fog, and balance issues). Although not all accidents are avoidable, there are some preventative measures that can be taken.

Increasing your brain fitness is one of the best ways to make your brain more resilient and less susceptible to sustaining a concussion. Research is



Coach Ryan Beckwith trains AJ Orange on the digital board, a cognitive training tool.

## Brain training allows for better spatial awareness.

now pointing toward cognitive training as the new frontier in fitness and a healthy lifestyle. Brain training is growing in popularity—it can include anything from mindful exercises, such as balance training and fine motor skill games, to brain games that challenge visual coordination, like reaction time and speed of recognition.

### Train Your Brain

Mindful exercise is a simple way to start including brain training in your routine. Mindful exercise is any exercise routine that engages both mind and body to work together, like balance exercises, hand-eye coordination drills, and repetitive movement patterns that challenge one's ability to move in multiple planes of space using visual or inner ear cues.

When it comes to sports, brain training allows for better spatial awareness, which in turn makes an athlete less susceptible to taking a hard fall or a careless bump. For athletes, this type of performance training might involve visual

drills during athletic tasks.

A3 Bakersfield is one of Kern County's most progressive fitness and health facilities dedicated to cognitive fitness. There are many benefits to training the body, brain, and vestibular systems together that contribute to overall health, but concussion prevention is perhaps one of the most important. If you suspect that you have a concussion, Kern Medical recommends that you have it evaluated by a physician as soon as possible.





# FULL SPEED AHEAD

**Kiley Norvell** STAFF WRITER

A fluke bike accident left Lane Kirk severely injured—but his family and friends refused to lose hope.





**L**ane Kirk is a dedicated sportsman. He spends his weekends dirt biking, four-wheeling, snowboarding, scuba diving, and mountain biking—basically, anything that will allow him to enjoy the great outdoors, preferably while exercising his athletic abilities. He loves the rush of adrenaline almost as much as he loves learning everything about the latest trend in extreme sports. Even his career is a rush—the team at Scaled Composites, his employer, is working on building the largest plane in the world. A high-energy, passionate person, Lane is always moving forward.

Lane Kirk had just driven home from his brother's house in Southern California on July 4, 2017. He had work the next day, but he wanted to catch the fireworks show in his hometown of Tehachapi before going to bed. He hopped on his mountain bike to ride a few minutes down the street for a better view, neglecting to put on his helmet—the street was paved, with no curves or bumps, and it was not yet dark. Lane headed out, pedaling slowly at first, then picking up speed. The next thing he knew, he was in the hospital with severe injuries and no memory of the past month.

At some point during his bike ride, Lane crashed, breaking his collarbone

and three ribs as well as hitting his head on the unforgiving pavement. He does not remember the accident, nor the moments before it. He was riding alone, and fortunately, some neighbors saw the crash and called an ambulance. The ambulance took him to the nearest hospital, and he was then taken to Kern Medical, the nearest trauma center.

Lane's parents, Larry and Linda Kirk, were watching fireworks from their own home five miles away when they received a call from the local hospital letting them know that Lane was in critical condition and headed to Bakersfield by helicopter. They did not yet know the circumstances of the incident or the extent of his injuries, but they jumped in the car and hurried to Bakersfield.

#### HOLDING ON TO HOPE

During that time, Lane was receiving emergency care that would save his life. Early on, it was clear that his head injury was the most severe trauma. Lane had a subdural hematoma, and the team at Kern Medical led by Dr. Joseph Chen, Chief of Neurosurgery, immedi-

ately performed a ventriculostomy to insert a catheter and relieve pressure on his brain. An automated device was inserted in order to monitor brain pressure and drain excess fluid. (Read more about the procedure and the technology used to save Lane's life on page 23.)

The first 24 hours were critical—once Dr. Chen inserted the catheter, all they could do was wait and hope that the swelling would go down. Larry had to make the difficult decision to return home to be with his mother, who was bedridden and required round-the-clock care. The nurses brought in an extra gurney so that Linda could lay down next to her son, assuring her that Lane was well taken care of.

The next day, Dr. Chen warned Larry and Linda that Lane may have permanent damage due to his injuries. He told them to look for signs that Lane was coherent, because ideally, he would be able to give them a thumbs up or hold up two fingers to show he was hearing and understanding what was going on around him. Although Lane started to open his eyes, he did not respond with any hand signals. At that point, his par-



A



B



C

**From Left:** A) Lane was intubated via a tracheotomy after he coughed out his breathing tube. B) Lane was very closely monitored after his accident so that the team could control his brain pressure. During this time, his family and friends relied on their faith, gathering hope from our expert staff and state-of-the-art technology. C) Lane's recovery involved a lot of physical therapy and regular check-ins with his doctor.



“Lane was alive, and that was a miracle in itself.”

#### FORGING FORWARD

The twenty days that Lane spent at Kern Medical were a blur for his family. He was moved to the Intensive Care Unit (ICU), still stable and breathing on his own, although they kept him intubated just in case. They reduced his sedation in hopes that he would regain consciousness, and against all odds, Lane began to move around more, pulling at tubes and responding to external stimuli.

Both Lane's parents and the Kern Medical staff rejoiced at this little bit of progress, but ultimately, Dr. Chen decided to put Lane into an induced coma to reduce more of the swelling in his brain. During that time, Larry, Linda, and other visitors were asked not to touch or speak to Lane so that his brain could rest, but Lane was never alone—someone was always keeping him company.

The Kirks have always been a tight-

knit family. Even though Lane's brother, Lauron, and sister, Lisa, both live in Southern California, they schedule regular visits so they can all spend time together. After Lane's accident, Lane's siblings rushed to Bakersfield as soon as they could, offering support and companionship as Lane recovered. Lauron took a leave of absence from work to stay nights at the hospital to relieve his parents who were staying with Lane during the day.

On July 14, Lauron noticed that Lane was coughing more than usual. A nurse, Henry Curpanen, told him that Lane had some fluid in his lungs, and it was good that he was coughing because they wanted him to expel any fluids. Nurse Curpanen was checking on Lane when he suddenly had a severe coughing fit that dislodged his breathing tube and blocked his airway. When Lane stopped breathing, his heart



stopped beating. Nurse Curpanen immediately climbed onto Lane's bed and gave him CPR until his heart started beating again.

"Nurse Curpanen jumped into action and didn't give up until Lane was okay," said Linda. "It was so scary, but he was calm and determined. We call him our 'hero nurse' now."

#### MAKING STRIDES

After that incident, Lane improved, slowly reaching milestone after milestone. The swelling in his brain decreased a little bit every day, and he gradually became more conscious, finally able to nod and shake his head in response to questions, then give a thumbs up, which resulted in a round of cheers from everyone in the room.

"Each day, he got a little better in every way," said Dr. Chen. "We started thinking about removing his cerebrospinal fluid drainage tube and moving him to a less intensive unit in the hospital, and then to a medical rehabilitation center."

Linda was happy to hear about this additional progress, but was also torn—she hated to see Lane moved to



cause I didn't want his care to suffer," said Linda. "The doctors and nurses had become a part of our family. We saw so many miracles during his time at Kern Medical, but he was doing too well to stay there, so we had to be happy for that."

#### GAINING MOMENTUM

Fortunately, Lane's recovery did not slow down at the therapy center. He did not begin to remember anything until he had been at the center for about two weeks. Before he regained his memory, he had already begun walking and talking again. The first thing he asked when he could speak again was, "How is Grandma doing?" Lane does not remember asking this, but his mother does.

"Lane doesn't remember anything about Kern Medical or the excellent care he received, but his family and friends, we experienced it all first-hand," said Linda. "It made all the difference in the world to know that Lane was receiving the best care when so much about his future was unknown."

During Lane's rehabilitation, he struggled to remember certain words and regain all of his strength—he was weak and unsteady due to his injuries. Linda was working with Lane whenever the staff was not, showing him flashcards and helping him to stretch and balance. She stayed with him 24/7.

#### ONWARD AND UPWARD

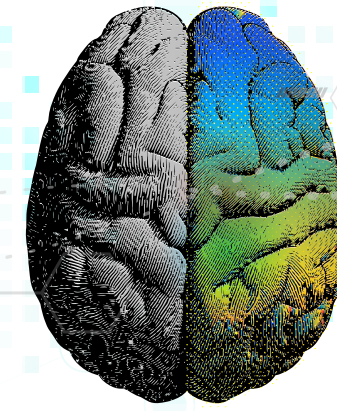
Twenty-five days after checking in, Lane and his family finally headed back to

Tehachapi. They arrived home a week before Lane's grandma passed away—she saw Lane come home healthy and happy, although he was not fully recovered, and Lane was able to spend quality time with her before she passed.

"She was holding on for something," said Larry. "When Lane came home, we knew she would let go, but it meant so much to both of them to see each other once more."

The recovery did not end there, but true to Lane's propensity for moving forward, he improved a little each day, and soon, he was back on his bike—wearing a helmet for every ride, of course.

"His recovery was truly remarkable," said Dr. Chen. "He has made a lot of progress, and although there is still progress to be made, Lane is not going to be held back by this incident."



# UNDER PRESSURE

## TECHNOLOGY THAT DOES MORE THAN MONITOR

Kiley Norvell STAFF WRITER

Lane Kirk (page 18) has always been interested in technology—especially the technology that allowed him to pursue his passions, like mountain biking, snowboarding, and scuba diving. He is a true outdoorsman at heart, but his love for these activities goes deeper than the surface. His scuba gear is an intricate, fascinating network of tubes and tanks, and his snowboard is waxed to perfection before every trip to the mountains. Even after his accident, Lane's mountain bike is more than a method of transportation for him. When Lane is committed to something, he learns it inside and out, doing his best to become an expert on every subject that interests him.

Lane's job as a manufacturing trainer at Scaled Composites is no different. Scaled Composites applies the most modern technology in designing, developing, and building prototype aircraft. Just before his accident, he was promoted—primarily because of his in-depth knowledge of the company and its employees. He is also one of the most well-liked team members at the company, making him the perfect person to train incoming staff.

Because Lane Kirk spends his days working with the latest technology, he understands the intricacies of how technology can affect and improve our everyday lives. After his accident, Lane understands this connection better than almost anyone else. For someone who spends his days working with new technology, it made sense that technology then helped save his life.

Lane's accident and subsequent stay at Kern Medical was difficult for his family, but the people at Scaled Composites did their best to ease the stress. He was out of work for seven months while he recovered, but while he was gone, Lane received visits from many of his work colleagues, including one of its vice presidents. When Lane was ready to go back, they welcomed him with open arms. The company was understanding of any new challenges that Lane faced due to his injury, and he was able to pick up his career again and continue moving forward after 12 successful years with the business.

One of the key pieces of technology that helped to save Lane's life is a robotic device that monitored his intracranial

pressure, called the LiquoGuard®. The LiquoGuard® unit is the only cerebrospinal fluid (CSF) management system that simultaneously monitors, measures, and drains CSF to maintain healthy pressure under controlled circumstances.

This specialized machine monitored Lane's intracranial pressure via a catheter that was implanted in his brain, in a procedure called a ventriculostomy. In Lane's case, the precise, moment-by-moment care provided by the LiquoGuard® in conjunction with the Kern Medical team was critical. Anytime the swelling in Lane's brain increased, the machine would counteract the extra pressure and drain excess CSF automatically, allowing for each issue to be addressed immediately and without the need for a staff member to perform a procedure. Kern Medical is the first place in Kern County to utilize a unit like this.

Now, with a good prognosis and a positive outlook, Lane is back in the office and back on his bike, living and loving his life—all thanks to the latest technology and a team of experts at Kern Medical.

“The doctors and nurses had become a part of our family.”

another unit when everyone in the ICU had been so wonderful to Lane and the entire family. After seventeen days in the ICU, Lane was transferred to the Direct Observation Unit, where Linda says Lane received equally excellent care for the following three days before being moved to a therapy center in Southern California.

"I didn't want him to leave be-





# Prevention is the Best Medicine



**Erica Easton**  
Executive Director of  
Kern Medical Foundation

As one of the busiest trauma centers in California, every day the team at Kern Medical sees the consequences of a traumatic injury. Often, the most severe injuries are caused by roadway accidents, and many victims spend months being cared for by a team of specialists while recovering in our Intensive Care Unit. The pain caused from a traumatic injury can have lifelong impacts not only for a patient, but for their loved ones.

At Kern Medical, we are fortunate to have many experts in traumatic injury, but even our trauma surgeons would agree that the best medicine for these devastating events is prevention. Kern Medical stands committed to providing our community with the education and tools to stay safe and unharmed through the expansion of our *Safe Streets* program. *Safe Streets* is a clinically-led, comprehensive safety program that provides distracted driving,

cycling, and pedestrian education for the Kern County community.

Split-second choices and decisions can make all the difference. We want kids to choose to wear a helmet when on a bike and look away from their phone when crossing the street. A key component of *Safe Streets* is the focus on awareness and sharing stories about the impact of traumatic accidents. For example, in this issue of *Health for Life*, Lane Kirk (page 18) was critically injured when he crashed on his mountain bike—had he been wearing a helmet, this injury most likely would not have been as severe.

During this school year, we will be sharing *Safe Streets* education with kids all over Kern County with a focus on schools near injury hotspots throughout our community. Distractions can occur at any time on a roadway, as a pedestrian, cyclist, or driver. Simple choices make all the difference.

- Don't text and drive
- Don't drive under the influence
- Wear a helmet
- Pay attention when crossing a street safely
- Wear a seatbelt
- Use an appropriate child safety seat or a booster

We want safe choices to become second nature for all of our community. Whether convincing a child to wear a helmet, empowering a teenager to buckle a seatbelt, or committing to never text and drive, together we can all make Kern County streets safer.

**Helmets can reduce the risk of severe brain injuries by 88 percent—but only 45% of children 14 and under usually wear a bike helmet.**

## Last year in Kern County there have been:

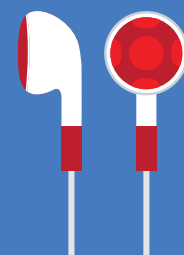
- 3,073 Trauma Activations
- 187 Bicycle Accidents
- 250 Pedestrian Accidents
- 10,614 Roadway Accidents
- 5,708 Injured Victims
- 187 Fatalities

# six simple BIKE SAFETY TIPS for your family



**ALWAYS WEAR A HELMET**  
A proper fitting helmet should set right above the eyebrows and be tightly buckled so it doesn't slip when riding.

**OBEY TRAFFIC SIGNS**  
Always ride with the traffic, obeying traffic signs and using proper hand signals.



**NEVER WEAR HEADPHONES**  
When riding your bike, turn off the music and do not wear headphones so you can devote your full attention to the road.

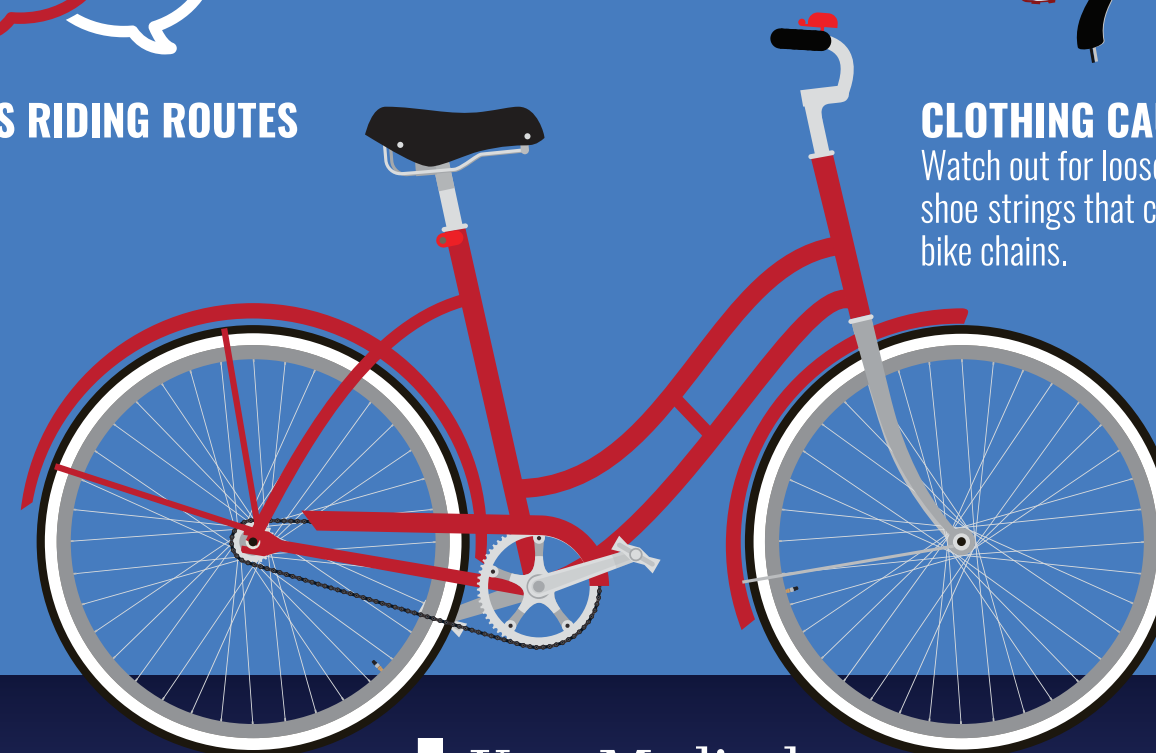
**NIGHT RIDING**  
Try not to ride at night or in bad weather, but if you must, remember to have lights and proper reflectors on your bicycle and reflectors on your clothing.



**DISCUSS RIDING ROUTES**



**CLOTHING CAUTION**  
Watch out for loose pant legs or shoe strings that can get stuck in bike chains.





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## TIPS TO STAY SAFE

1. Always wear a properly fitted helmet.
2. Pay attention to your surroundings.
3. Don't ride after dark.

**BIKE SMART. STAY SAFE.**

 **KernMedical**

*Health for Life.*

[KernMedical.com](http://KernMedical.com)