



San Diego 
Spine Foundation
Established in 2006



2020 Annual Report

Academic Year

August 2019 – July 2020

OUR MISSION

To Serve the Spine Community through Achievement of
Professional Excellence and Optimization of Clinical Care

Note From The President and Founder



Each time this assignment rolls around, I am amazed that another year has gone by! To say 2020 was a year to remember is an understatement. The year started with our Gala fundraiser and fellowship interviews, both highly successful. Then COVID hit. It seems everyone in the SDSF family was affected in some form, the most notable of which was Greg Mundis, Jr's father, Pastor Gregory Mundis. His 90+ day battle, which placed him near death, and the heart wrenching Facebook communications from Greg Jr. personalized the pandemic far beyond changing hospital protocols and the interruption of schedules and plans. It is a blessing to all that Greg, Sr. recovered over the coming months and we were very fortunate to see him during a recent visit to San Diego with his family. (photo below) Pat Kostial's article in this issue provides a great summary on SDSF's yearlong efforts to adapt to the "new normal."

Well before the pandemic, Pat made the difficult decision to retire at the end of 2020. It is hard to imagine SDSF without Pat actively involved, but we are happy that she will continue to serve as a member of our Board. Pat, thank you for your service to SDSF since its inception. You are embedded in both its history and future, and we cannot thank you enough for your help and dedication. We wish you all you desire and deserve in your retirement. We are very proud of your accomplishments at SDSF.

Pat's gracious, early notice allowed SDSF to plan carefully how to fill her shoes. Last March, SDSF hired Mai Lee, aPHR, to take over administration of the Academic and Fellowship Programs. With her expertise in HR and Project Management, Mai hit the ground running. She has been a wonderful addition to our family and her contribution has been exceptional. Thank you, Mai!

We also feel very fortunate that Tressa Goulding, CAE, is taking over the position of Executive Director on December 1st. Tressa is known to many in the world of spine, having only recently retired from her position as Executive Director of the SRS. Tressa's nonprofit and academic society expertise will definitely guide SDSF upward in the future. Finally, Anne Anderson, CPA, will assume more accounting responsibilities, thus keeping track of the Foundation's financials.

We are also fortunate to have Peter O. Newton, MD, joining SDSF Board of Directors. Peter is Chief, Division of Orthopedic Surgery, Rady Children's Hospital, Clinical Professor at UCSD, and Past President of SRS. He is currently president of SSSF and the Harms Study Group, with vast experience in clinical and basic science research. Peter's guidance will be instrumental as our collaborative research efforts take shape.

In addition, we would like to congratulate Bob Eastlack, MD, for his election as President of the San Diego Orthopaedic Society. Congratulations, Bob! We look forward to your continued efforts to bring the orthopaedic community together in San Diego. As Bob was also appointed Chief of the Scripps Green Spine Division, Greg Mundis, Jr. has transitioned as Director of our Fellowship Program. Both new roles will positively impact fellowship training.

Our SDSF faculty continue to contribute meaningfully to national spine societies through positions of leadership, committee participation, lectureships, and research presentations, as well as outreach trips to Mexico and Columbia, all while carefully devoting their time to provide the best quality care for their patients. I always admire their effort to keep the balance between family, practice and academic activities. Thanks to the SDSF faculty and staff's continued efforts to improve all aspects of the training program, as seen in Greg Mundis' report, we have a record 95 applicants, for two positions, seeking spots for interviews. We thank all our Fellows who invested time in the fellowship evaluation process. Their input has also driven the changes that have helped make our program so successful.

Finally, I am happy to report that the appointment of the first Endowed Chair in Spine Surgery at the Department of Orthopedic Surgery at UCSD will be forthcoming, now that the Department has successfully recruited its new Chairperson, Susan V. Bukata, MD, who starts January, 2021. By this time next year, I hope to provide you significant updates, including the name of the first Endowed Spine Chair. The collaborative research however, is progressing and you can find Bahar Shahidi's report, also in this issue.

So, what a year! Some parts deeply sobering, some truly enlightening and positive. Overall, SDSF has evolved and prevailed. As ever, I am eternally grateful to all our SDSF family and supporters and remain optimistic for our future, looking forward to 2021 and beyond.

Warmest regards,

Behrooz



San Diego Spine Foundation Board of Directors and Faculty



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1. Behrooz A. Akbarnia, MD, *President and Founder, Board of Directors, Director Emeritus San Diego Spine Fellowship Program*

2. Sarah E. Aghassi, Esq. *Secretary, Board of Directors*

3. Robert K. Eastlack, MD, *CFO, Board of Directors Faculty Member, Spine Fellowship Program*

4. Patricia N. Kostial, RN, BSN, *Board of Directors*

5. Gregory M. Mundis, Jr., MD, *Vice President, Board of Directors Director and Faculty Member, Spine Fellowship Program*

6. Peter O. Newton, MD, *Board of Directors*

7. Jeff Pawelek, BS, *Board of Directors*

8. Sam Ward, PT, Ph.D., *Board of Directors*



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Additional Members of the Fellowship Faculty



Ramin Bagheri, MD
*Scripps Clinic,
La Jolla, CA*



Maneesh Bawa, MD
*San Diego Orthopaedic
Associates
Medical Group,
San Diego, CA.*



James D. Bruffey, MD
*Scripps Clinic,
La Jolla, CA.*



Ali Bagheri, MD
*Girard Orthopedics
San Diego, CA*



Hani Malone, MD
*Neurosurgeon
Scripps Clinic,
La Jolla, CA.*

San Diego Combined Spine Fellowship Program Fellowship Director's Message 2019-2020

Our 2019-20 Fellowship year was another success despite COVID-19 challenges, with 4 physicians completing their clinical spine training: Jakub Godzik, Ryan Hoel, Ruwan Ratnayake, and Corey Walker. Since graduation, Ryan has accepted a position with Twin Cities Orthopedics in Minneapolis, Minnesota, Ruwan has accepted a position with Northern California Spine and Rehabilitation Associates in Sacramento, California, and both Jakub and Corey are finishing their final year at Barrow Neurologic Institute. We'd like to congratulate each of them for their hard work and wish them great success in their future careers.

On August 1, 2020, our new clinical fellows hit the ground running – quickly acclimating to the COVID-19-adjusted clinical and academic settings: Robert Ames from Temple University Orthopedic Residency Program and Daniel Reid from Brown University Orthopedic Surgery Residency Program.

Looking to the future, we will be welcoming Micah Blais from the Harvard Combined Orthopedics Residency Program, Boston, Massachusetts and Kody Barrett from the Harbor-UCLA Medical Center Orthopedic Surgery Residency, Los Angeles, California. We are pleased to have matched both Drs. Blais and Barrett who were among our top ranked candidates.

We are thrilled to receive a new record-breaking 95 applications to our program for two fellowship positions for the academic year 2022-23. This is a 44% increase from our then highest application year (2019-20). We definitely have our work cut out for us as we work to identify the top candidates and strategize on virtual interviews that will occur in late February 2021. Already armed with constructive input from our past and current fellows, we hope to continue to build a program that is the best in the country. Thank you to all who have contributed to making our fellowship training program one of the very best!

Gregory M. Mundis, Jr., MD

New Board Member

Peter O. Newton, MD



Dr Newton is a pediatric orthopedic surgeon with 25 years of practice who specializes in the care of children and adolescents with spinal deformities. He completed his undergraduate training in Bioengineering at UCSD before getting his medical degree from Southwestern Medical School in Dallas. He returned to UCSD for his orthopedic training and was back to Dallas at TSRH for his pediatric orthopedic fellowship.

He joined the pediatric orthopedic group at the Children's Hospital San Diego in 1994 and is the Chief of the Orthopedic division at Rady Children's Specialist in San Diego California. He is also a Clinical Professor in the Department of Orthopedic Surgery at the University of California, San Diego. He is a past president of the Pediatric Orthopedic Society of North America and the Scoliosis Research Society.

His clinical interests have been focused on novel treatments for scoliosis including: thoracoscopy in anterior thoracic spinal surgery, posterior methods designed to maximize the 3-dimensional correction of scoliosis as well as fusionless methods of spinal growth modulation.

He leads the well-recognized Harms Study Group in their effort to produce influential multicenter scoliosis research and is president of the foundation, Setting Scoliosis Straight. In addition to clinical outcomes research, his laboratory has been involved in the basic science of spinal growth, biomechanical studies related to implants and 3-dimensional imaging methods and quality improvement.

Dr Newton is committed to advancing the field through excellence of clinical care, education of future generations and innovative research.

WELCOME TO SDSF

We are excited and honored to announce the newest members of the SDSF Family to you! Despite its challenges, 2020 was a year of growth as well as positive change for SDSF. We couldn't be more pleased.

Welcome Peter, Mai and Tressa!

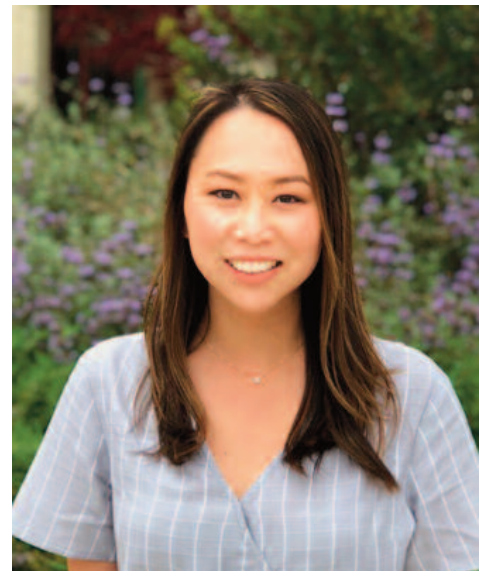
New Academic Administration

Mai Lee, aPHR

SDSF is pleased to welcome Mai Lee, aPHR as one of the newest members of our SDSF family, with her primary role as Fellowship Administrator. Mai began her role with SDSF in early March, just days prior to the start of the pandemic. She hit the ground running and is now an integral part of the Academic management team.

Mai received her B.S. in Business Administration from San Diego State University. She has a background in human resources and has held various HR roles in the areas of onboarding, recruiting, training, employee relations, benefits, and systems. Mai spent the majority of her career working for a non-profit research institute and was most recently at a clinical-stage biotech company before joining the San Diego Spine Foundation. She enjoys supporting organizations that are making meaningful impact to improving human health and quality of life. She enjoys exploring San Diego, cooking, and spending time with family located in San Diego and Minnesota.

Thank you, Mai! You are a tremendous addition to our family.



New Executive Director



Tressa Goulding, CAE

I began my career in association management with a position as assistant to the Specialty Societies Department Director at the American Academy of Orthopaedic Surgeons in 1990. I worked with membership, meetings, courses, and committees for several orthopaedic subspecialty groups. In 1994, I was promoted to Director for the Scoliosis Research Society (SRS), just in time to deal with the multi-district pedicle screw litigation that included SRS and AAOS among the defendants. I was also Director for the Cervical Spine Research Society (CSRS), Federation of Spine Associations (FOSA) and SICOT US for several years.

As SRS grew in membership and activities, CSRS, FOSA and SICOT US were handed over to other AAOS staff. Having decided that I had found a career I enjoyed and wanted to grow in, I began working toward certifications in association management and meeting planning. I completed all requirements and passed the exams for the Certified Association Executive (CAE) and Certified Meeting Profession (CMP) in 2002.

In early 2002, SRS made the decision to move their headquarters to Executive Director, Inc. (EDI), an association management company in Milwaukee, Wisconsin, and asked me to move with them. The move was a positive one, enabling SRS to continue to grow and expand activities.

During my time with SRS, I worked with leadership to expand membership and SRS education around the world. Membership and meeting attendance more than doubled in size, while maintaining the original high standards and quality. The first non-North American and neurosurgical surgeons joined the Board of Directors and entered the Presidential Line. The endowment fund increased tenfold and overall net worth also increased to support the growing numbers of activities related to education, research and advocacy.

I made the decision to retire from full-time work in May 2020. Having grown up in Idaho, I knew I wanted to return to the Northwest with its mountains and open spaces. I now live near the small farming community of Goldendale, Washington, with my sister, two horses and four cats. When Dr. Akbarnia approached me about a part-time position with San Diego Spine Foundation, I saw it as a perfect opportunity to continue to be involved on a less-demanding level with surgeons and efforts that I admire. And respect.

When not working, I enjoy riding and training my horses, drawing and painting, watching birds and wildlife, and travel. I love exploring new places, and have visited all 50 states and 44 countries.

A collage image featuring a close-up of a person's face wearing a surgical cap and mask, overlaid with a blue-tinted image of a city skyline and a bridge over water. The text 'Preparing For The Future' is written in white across the middle.

Preparing For The Future

MAKING LEMONADE FROM LEMONS

SDSF vs COVID19

By Pat Kostial, RN, BSN

The year 2020 is arguably one for the record books. The emergence of the 21st century plague, that we refer to as a “Pandemic”, began March 11th, 2020. How do I know this? I was returning from San Diego to my home in Texas that day. I deplaned to a world gone crazy. A routine trip to Costco from the airport had me stopped in my tracks as the parking lot was as bad as any black Friday sale with members leaving with piles of toilet paper, paper towels and cleaning supplies. I thought these folks had lost their minds! After all, how bad could it be?!



Well, 8+ months later with no clear end in sight, we in the U.S. have settled in for the long haul, new routines, new lifestyles having emerged to adjust, to cope. And COVID 19 has impacted every American in some way. Some financially, some through the ultimate price of lost life of a loved one. Many more who were ill have or are recovering, but no one knows the long-term effects.

For SDSF, the emergence of COVID was surreal. One week-end we were hosting a highly successful Gala fundraiser, immediately followed by a full day of fellowship interviews and by the next weekend, fellowship programs were cancelling all interviews and all academic travel was banned. To say SDSF was blessed to complete these critical events is an understatement. Then, on March 11th, the World Health Organization declared the pandemic and businesses, institutions and organizations around the country (and the world) quickly began to realize the potential impact going forward.

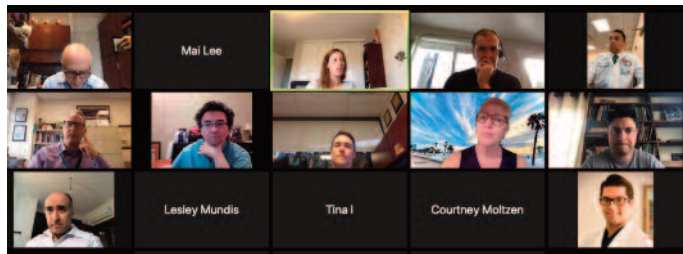
But this article isn't written to rehash bad memories. Instead, it is a cathartic; good medicine to review just how SDSF was able to evolve and flourish in the process.

“It's about making lemonade from lemons.”

San Diego Spine Fellowship Program

One of the very first things our faculty and fellows faced was the sudden cessation of elective surgeries. Hospitals were preparing for the potential inundation of COVID cases and every available respirator and ICU bed was held open to accommodate patients. Also, group meetings were all but banned and offices were told to shut down. I was fortunate to have worked from my home for the last 7 years, so I had already adapted, but we needed solutions for our regular meetings and conferences.

Like most of the country, Zoom rapidly became a regular part of our vocabulary. Our new Fellowship Administrator, Mai Lee, hit the ground running. Within 2 weeks, all spine conferences and research meetings became virtual, then Journal Club meetings followed.



2020 SDSF/SDSI Research Meeting via Zoom

Clinical experience for fellows continued as faculty needed to treat patients with non-elective spine problems. Clinics and on call schedules adjusted to limit exposure for both fellows and faculty, ensuring no one person would be overburdened should the hospital be immersed in a COVID crisis.

Also greatly impacted was International Visiting Fellow, Caterina Fumo, MD from Rome, Italy. She had spent just weeks observing our program when the Pandemic was declared. At that time, Italy was already weeks ahead of the U.S. as far as the spike and lockdowns, so it seemed logical for her to remain in the U.S. temporarily.



International Fellow Caterina Fumo with Bob Eastlack. Feb. 2020

Then, access to and from Europe became problematic, so Caterina returned to her residency program in Italy, nearly 6 weeks early, before travel was completely banned. It is our hope she will be able to return one day to complete her visit.

Fortunately, COVID cases stabilized earlier than anticipated and hospitals in San Diego were allowed to slowly resume their elective surgeries by May, permitting our fellows to resume their full surgical training, with both fellows completing a higher than average caseload by graduation. Still, group meetings and travel remained off limits. Our use of Zoom meetings evolved to expand invitations to the entire San Diego spine community. In general, our conference attendance has doubled or more, given the ease of logging in from home or work to attend.

In the end, the pandemic prevented some of our fellows from participating in global mission trips sponsored by SDSF and offered by Global Spine Outreach as part of our program's curriculum. SDSF believes this medical mission training is critical to our fellow's development as caring physicians, so a decision was made to extend an opportunity to attend a mission trip post-fellowship. This will remain our policy until the pandemic has ended and all impacted fellows have had the opportunity to serve.



Graduating Fellows Corey Walker, Ryan Hoel and Ruwan Ratnayake with Faculty members Ramin Bagheri, Ali Bagheri, Hani Malone, Bob Eastlack, Greg Mundis and Jamie Bruffey, Aug 2020

SDSF Graduation 2020 was celebrated, albeit with a small, intimate group of faculty and fellows only, to limit exposure. Greg and Lesley Mundis created a festive atmosphere at their home and a sumptuous Sushi feast was enjoyed by all.

Adaptation

Behavior - Physiology - Structure

Our new fellows for 2020-2021, having adapted to pandemic life at the end of their residency training, have hit the ground running. Zoom spine conferences and research meetings continue, now with presentations being posted on the SDSF website to provide easier access for ongoing learning.

And, our Journal Club meetings have brought back industry hosting to those companies wishing to sponsor a meeting in the virtual world.

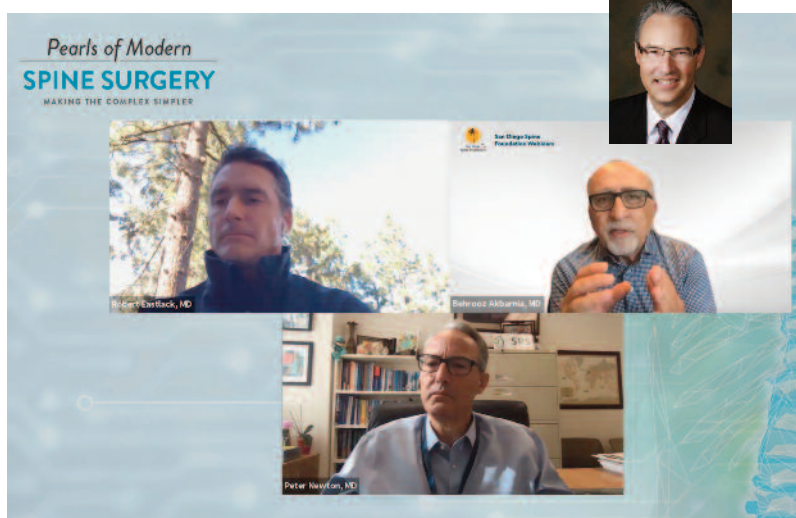
Education, Research and Mentorship



Dominique Rothenfluh's eloquently prepared talk from Oxford, England during the July Visiting Professorship Meeting, July, 2020

The San Diego Spine Annual Visiting Professorship has become the flagship of our academic year. The 2020 event had again been planned for the last Friday in July with Peter O. Newton, MD and Dominique Rothenfluh, MD, PhD as our Visiting Professors as well as notable spine surgeons from Southern California as faculty. By May, it was apparent we would not be able to proceed with a live meeting. SDSF worked with BroadWater, an internationally known medical education provider, to transition our VP event into a series of 3 webinars over a one-year period.

In keeping with the history of our meeting, the first webinar was held on Friday, July 31st, with Drs. Newton and Rothenfluh again agreeing to speak, along with our 4 graduating fellows, who presented their research projects. The initial webinar was extremely well received with 216 registered and 103 attending, a 48% attendance rate, which is tremendous for a complimentary educational session.



Peter Newton discusses his presentation as Visiting Professor with Bob Eastlack and Behrooz Akbarnia during the Annual Visiting Professorship Meeting, July 2020

Our next webinars are planned for November 21st, 2020 with David Skaggs, MD and Robert Cho, MD, speakers for our pediatric deformity-based webinar, and March 27th, 2021 with speakers to be announced.

SDSF has initiated plans to partner with Broadwater in 2021, for what we hope to be a combination live Visiting Professorship Meeting with a webinar component. Of course, the evolution of the pandemic will ultimately dictate our final plans for this meeting in 2021.

In addition, Gregory Mundis, Jr., MD provided a virtual keynote address to AO Fellows on June 9th titled "Surgeon Know Thyself: How to Transition into Practice and Not Lose Yourself". This topic is very much in keeping with SDSF's new mission and vision statement, which promotes mentorship of young spine surgeons.

So, pandemics may come and go, but the true test is what you do with the lemons that life throws at you.

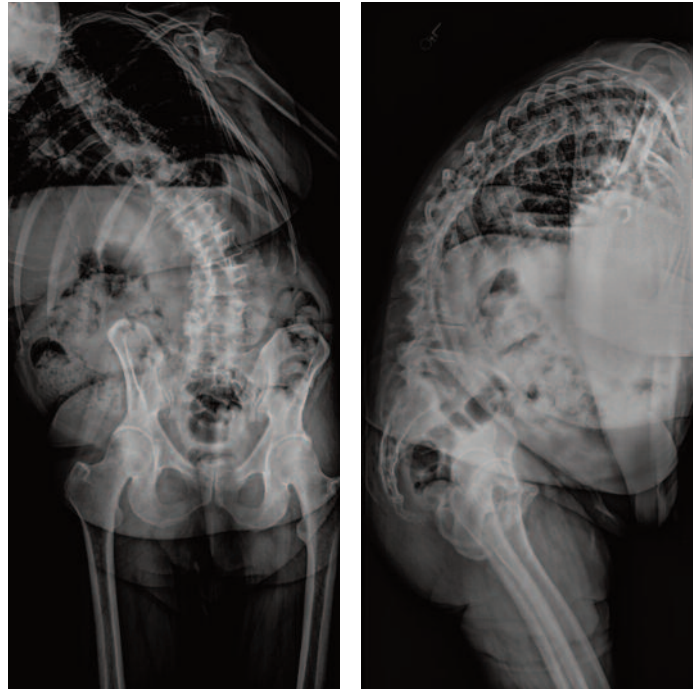
SDSF chooses to make lemonade.

“NEVER SAY NEVER!”

I'm Miles, 68 and a retired attorney. I'm sharing my story to help anyone considering back surgery. During my legal career in Louisiana, I met a number of clients and friends, who suffered from back ailments and underwent different types of back surgeries. I may have known too much about failed back surgery at that time, but I'll come back to this subject later.

My story begins with my parents. I was loved and cared for until they died during my adulthood. When I left home at 18 to attend LSU, it took two weeks to become a “free thinker”. I was in good shape mentally and physically when I entered LSU. I used drugs during my teenage years, as was all the rage among youths in the '60s, and that behavior accelerated when I entered LSU. This created a lot of problems, and an uncle (an attorney) told my father that my biggest problem in life was I thought I was invincible. I did. In my defense, I'd say that real problems with insomnia, anxiety, etc., somewhat contributed to my behavior. And, the powerful medications prescribed at the time for such medical problems didn't help my overall situation.

However, I went on to become a successful attorney and had all the possessions that go with such an endeavor. I continued to be a “free thinker” and was in excellent physical condition, engaging in many activities. There were no issues with my back until my wife and I moved to Paso Robles, California.



In March 2004, I had lower back pain and by August 2004, my spine began to curve forward and to the right. My pain continued to worsen and I began to self-medicate with medicines obtained over the Internet. As a result, I resigned from the practice of law in Louisiana, and began seeking a physician to help control my pain. Finally, in January 2005, I saw a physician in Templeton, California, who started me on Morphine and referred me to physical therapy for treatment.

In March 2005, my PCP referred me to the head of the Orthopedic Clinic at Stanford University. After a thorough workup, I was given a choice, i.e., I could continue on opioids for back pain or undergo back surgery. I chose the opioids and the next 15 years are somewhat of a blur.

He pointedly stated:

“We can get you standing normal.”

As with all opioids, I became physically dependent on them and graduated from Morphine to Dilaudid. My spine continued to worsen (Kyphoscoliosis) and I could barely care for myself. Thankfully, my wife was an angel and helped care for me.

At this point, my wife and I moved to SoCal. It was at this point that my life began to take a turn for the better. Simply stated, a perfect storm of events conspired to send me in the direction of back surgery.

First, in November 2018, my PCP at the time referred me to an orthopedic spine surgeon, Robert K. Eastlack, M.D., at Scripps Clinic. During my first visit, he pointedly stated “We can get you standing normal.”



I'll never forget that statement, nor Dr. Eastlack. On my second visit, I stated that he reminded me of Benjamin Hawkeye Pierce, the U.S. Army surgeon in the TV series "MASH. Dr. Eastlack exuded a confidence in his abilities as a spine surgeon, which gave me great confidence in those abilities. Dr. Eastlack's statement also gave me hope that there was an alternative to opioids that could change my life.

Second, a dispute with a local Pharmacy shocked me into the realization that I could no longer continue down the opioid path. I was in desperate need of an alternative and Dr. Eastlack was offering it to me. I now had hope. Dr. Eastlack gave me a "weaning schedule" to get off Dilaudid which I followed for 5 weeks. Then, I spent the next 8 weeks going through opioid withdrawal. But, Dr. Eastlack assured me that my pain would diminish once I was off Dilaudid and it did.

Third, I experienced two sets of miracles that steered me towards spine surgery. These revelations consisted of 4 occasions when strangers randomly approached to help me. This included a robust man about my age, at my pharmacy, who looked at me and said "I used to be like you". When I asked what happened, he simply said "back surgery" and walked away.

Once off the aforementioned medications, I continued to meet with Dr. Eastlack, who encouraged me every step of the way. Finally, my surgery was scheduled for July 31, 2019. As the day of surgery approached, I began to speak with God (remember I'm a free thinker) and basically reached the point where I was okay with the outcome no matter what.

On the day of surgery, I underwent a major reconstructive spine surgery, and though I was under the influence of powerful medications afterwards, I recall Dr. Eastlack afterward looking physically exhausted. We spoke for a while, I thanked him profusely, and he left.

My recovery was not a piece of cake by a longshot. I must encourage anyone considering back surgery to be very demanding of your surgeon and those who care for you after surgery. Tell them exactly what you feel and expect.

My hospital experience was okay with intensive care and medications. However, when I entered the "rehabilitation center", an incident occurred when the attending physician attempted to cut my pain medications too quickly. For two days, I was in extreme pain until Dr. Eastlack intervened and ordered the appropriate opioid medication. That incident, requiring Dr. Eastlack's intervention, somewhat soured my experience after surgery. Inadequate pain management after back surgery can be a very difficult problem to handle, so speak up! It's easier to complete the needed therapies when pain is well managed.

After discharge, Dr. Eastlack became uncomfortable prescribing opioids, so I found a pain management specialist who reasonably and successfully withdrew me from Percocet 10 and Diazepam. I attended aqua therapy after discharge and worked hard towards my successful rehabilitation.

Today, I'm tall and straight as an arrow. And, almost everyone who knew me before surgery considers my outcome to be a miracle. I now walk over a mile every day in ~20 minutes. I keep pushing myself to walk farther as time goes on.



I strive to become like the man who spoke with me at the Pharmacy, an advocate. I take minimal medication for pain. I sincerely feel like a miracle has occurred that has given me my life back. Recently, I had my one-year check-up and both Dr. Eastlack and I were very pleased with my progress.

I can best summarize my experience, and my insight as follows:

- No matter what has occurred during your past, always look to the future
- Live life one day at a time, as that's all you can handle
- Always be ready to question your own thoughts and beliefs about any subject. When it came to spine surgery, technology is constantly changing for the better
- Seek physicians who are fellowship trained and do regular critical-thinking research on the topic. They seek to improve the quality of care for their patients

SDSF would like to thank Miles for his insightful story. For the full-length story, please visit our Patient Stories section of our website at

<https://www.sandiegospinefoundation.org/patients/stories/>



Graduating Clinical Fellows 2019-2020



Jakub Godzik, MD
*Barrow Neurological Institute
Phoenix, AZ*



Ryan Hoel, MD
*Twin Cities Orthopedics
Minneapolis, MN*



Ruwan Ratnayake, MD
*Northern CA Spine and
Rehabilitations Associates
Sacramento, CA*



Corey Walker, MD
*Barrow Neurological Institute
Phoenix, AZ*

Current Clinical Fellows 2020-2021



Robert J. Ames, MD
*Temple University
Philadelphia, Pennsylvania*



Daniel Reid, MD, MPH
*Brown University
Providence, Rhode Island*

SDSF has trained a total of 42 Clinical Fellows, 5 Research Fellows, numerous International Fellows, and 25 Navy Ortho Residents since inception, contributing to the advancement of spinal care.

Research Fellow



Fernando Rios, MD

International Research Fellow



Caterina Fumo, MD

Future Clinical Fellows 2021-2022



Kody K. Barrett, MD
*Harbor UCLA Medical Center
Torrance, CA*



Micah B. Blais, MD
*Harvard Combined Orthopedics
Residency Program
Boston, MA*

Naval Medical Center San Diego Orthopedic 2020-2021 Residents

SDSF is proud of our continued collaboration with the Orthopedic Residency Training Program at NMCS. Beginning in July 2017, we have welcomed PGY-4 residents from the Naval Medical Center. Residents complete 10 week rotations with our full-time clinical faculty. Their training curriculum includes clinic and surgeries, weekly spine and research conferences, journal club meetings, and presenting one assigned lecture.



Andrew Johnson, MD



Thomas Kelsey, MD



Shian Peterson, MD



Nicholas Perry, MD



Jessica Stambaugh, MD

Fellows Activities



2019-2020 Fellow Ruwan Ratnayake, MD is presented with the 2020 Thornburg Award at Scripps Green Hospital, June, 2020



International Visiting Fellow, Caterina Fumo with Fernando Rios, Ryan Hoel, Behrooz Akbarnia and Ruwan Ratnayake in Feb. 2020



Intimate Graduation Celebration of Faculty and Fellows at Greg and Leslie Mundis' home, Aug. 2020



New fellow, Daniel Reid, in O.R., Aug. 2020



Yousef Ghandour, PT presents a talk on Rehab for Spine Surgery patients during a weekly Fellows Conference, Nov. 2019

Benefactors

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| Medtronic | G, JC, VP | Stryker | G, VP |
| NuVasive | FG, RG | Titan Spine | RG |
| OrthoFix | VP | Zimmer-Biomet | VP |
| SeaSpine | FG, JC, RG, G | | |

Donor Key:

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| G = Gala |
| AG = Annual Giving |
| FG = Fellowship Grant |
| JC = Journal Club |
| RG = Research Grant |
| VP = Visiting Professorship Webinars |

Friends and Family

| | | | | | |
|-----------------------|-------|-----------------------|-------|------------------------|-------|
| Reid Abrams | G | Carolyn Griesemer | AG | Sandra Mundis | G |
| Sarah Aghassi | G | Jim Grotting | G | Scott Musicant | AG |
| Behrooz A. Akbarnia | AG, G | Troy Guerra | G | Pooneh Neville | G |
| Nasrin Akbarnia Owsia | G | Manijeh Hakimi | G | Cathy Newton | G |
| Ladan Akbarnia | G | Medhi Hakimi | G | Peter Newton | G |
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| Ali Bagheri | AG, G | Kenyu Ito | AG | Ruwan Ratnayake | G |
| Ramin Bagheri | G | Javad Jamshidi | G | Ryan Redmond | G |
| Beth Ball | G | Mitra Jamshidi | G | Dave Reveley | G |
| J.K. Garcia Balongag | G | Beth Jaramillo | AG, G | Anthony Rinella | G |
| Shaeffer Bannigan | G | Arthur Jones | G | Jordyn Rodwell | G |
| Bethann Barry | G | Vickie Jones | G | Joe Rogers | G |
| Maneesh Bawa | AG, G | Gita Khadiri | G | Alex Roudi | AG |
| Christin Bawa | AG, G | Nikolas Kerr | G | Laleh Roudi | AG |
| Matthew Bell | AG, G | Pat Kostial | AG, G | Jenica Ryu | G |
| Wendy Bendfeldt | G | Brandee Krzanich | G | Marisa Saladino | G |
| Jeff Berg | G | Kelly Lenzkes | G | Bahar Shahidi | G |
| Debra Boblitt | G | David Levine | AG | Leila Sharghi | G |
| Ed Boblitt | G | Matthew Link | G | Jan Scheibe | G |
| John Bostjancic | G | Aimee Liwanag | G | Virginia Sheller | G |
| Lauren Brown | G | Ryan Logan | G | Chris Shen | G |
| James Bruffey | AG, G | Bob Lotierzo | G | Marie Simmons | G |
| Patti Bruffey | AG, G | Fereshteh Mahdavi | G | Mark Slaughter | G |
| Zach Burton | G | Mahmood Mahdavi | G | Madeleine Trafficanda | G |
| Alissa Carnelian | G | Sormeh Mahjouri | G | Pat Tullius Wickstrom | AG |
| Robert Cho | AG | Hani Malone | AG, G | Nils Wickstrom | AG |
| Dennis Cirino | G | Melanie Malone | AG, G | Jeffrey J Valko | G |
| Stephanie DeVrecker | G | Hamid Mani | G | Kush Verma | G |
| Robert K. Eastlack | AG, G | Melissa Mani | G | Katherine Victa | G |
| Jennifer Eastlack | AG, G | Jon Martin | G | Frank Vizesi | G |
| Julius Ebinu | G | Peter Marzano | G | Steven Vizmeg | G |
| Hazem Elsebaie | AG | Paul McClintock | G | Corey Walker | G |
| Joe Fitzgerald | AG | Hooman Melamed | G | Sam Ward | G |
| Maryanne Fitzgerald | AG | Parvis Mesbahzadeh | G | Jason Welsch | G |
| Patrice Gaj | G | John Mikulski | G | Dennis Wenger | G |
| Cheryl D. Garfin | G | Cyrus Milani | AG | Kathleen Wenger | G |
| Steven Garfin | G | Coleen Milne | G | Drew Williams | G |
| Yousef Ghandour | G | Kiumars Mostowfi | AG | Burt Yaszay | G |
| Cynthia Goode | G | Gregory Mundis, Jr. | AG, G | Kevin Yoo | G |
| Sana Goss | G | Leslie Mundis | AG, G | Vinko Zlomislac | G |
| Steven Green | G | Gregory Mundis, Sr. | G | | |



Once Upon A Time

NORTHERN LIGHTS *Winter Gala*







SDSF and GSO celebrated their collaborative efforts with a combined Gala Fundraiser on February 28, 2020. Honorees included Steven R. Garfin (SDSF-Akbarnia Award) and past SDSF Fellow Edward Nomoto (GSO-Rinella Award). Both SDSF and GSO want to thank all our sponsors, especially SeaSpine, which supported the event at a Diamond Level.

This event was magical and the joy was infectious. Please see page 12 acknowledging all our wonderful donors/supporters.



NORTHERN LIGHTS





Publications and Presentations 2019-2020

Peer-Reviewed Publications

Margalit A, Sponseller PD, McCarthy RE, **Pawelek JB**, McCullough L, Karlin LI, Shirley ED, Schwend RM, Samdani AF, **Akbarnia BA**, CSSG and GSSG: Growth Friendly Spine Surgery in Escobar Syndrome. *J Pediatr Orthop*, 39(7):e506-e513, August 2019



Iyer S, Kim HJ, Bao H, Smith JS, Protopsaltis TS, **Mundis GM**, Passias P, Neuman BJ, Klineberg EO, Lafage V, Ames CP, ISSG: Cervical Deformity Patients Have Baseline Swallowing Dysfunction but Surgery Does Not Increase

Dysphagia at 3 Months: Results From a Prospective Cohort Study, *Global Spine J*, 9(5):532-539, August 2019

Passias PG, Segreto FA, Lafage R, Lafage V, Smith JS, Line BG, Scheer JK, **Mundis GM**, Hamilton DK, Kim HJ, Horn SR, Bortz CA, Diebo BG, Vira S, Gupta MC, Klineberg EO, Burton DC, Hart RA, Schwab FJ, Shaffrey CI, Ames CP, Bess S: Recovery Kinetics Following Spinal Deformity Correction: A Comparison of Isolated Cervical, Thoracolumbar, and Combined Deformity Morphometries, *Spine J*, 19(8):1422-1433, August 2019

Passias PG, Horn SR, Raman T, Brown AE, Lafage V, Lafage R, Smith JS, Bortz CA, Segreto FA, Pierce KE, Alas H, Line BG, Diebo BG, Daniels AH, Kim HJ, Soroceanu A, **Mundis GM**, Protopsaltis TS, Klineberg EO, Burton DC, Hart RA, Schwab FJ, Bess S, Shaffrey CI, Ames CP, ISSG: The Impact of Osteotomy Grade and Location on Regional and Global Alignment Following Cervical Deformity Surgery, *J Craniovertebr Junction Spine*, 10(3):160-166, July/September 2019

34 Publications
25 Podium Presentations
8 Poster Exhibits

Burton DC, Sethi RK, Wright AK, Daniels AH, Ames CP, Reid DB, Klineberg EO, Harper R, **Mundis GM**, **Hlubek RJ**, Bess S, Hart RA, Kelly MP, Lenke LG: The Role of Potentially Modifiable Factors in a Standard Work Protocol to Decrease Complications in Adult Spinal Deformity Surgery: A Systematic Review, Part 1, *Spine Deform*, 7(5):669-683, September 2019

Sethi RK, Burton DC, Wright AK, Lenke LG, Cerpa M, Kelly MP,

Daniels AH, Ames CP, Klineberg EO, **Mundis GM**, Bess S, Hart RA, ISSG: The Role of Potentially Modifiable Factors in a Standard Work Protocol to Decrease Complications in Adult Spinal Deformity Surgery: A Systematic Review, Part 2, *Spine Deform*, 7(5):684-695, September 2019

Bortz CA, Passias PG, Segreto F, Horn SR, Lafage V, Smith JS, Line B, **Mundis GM**, Kebaish KM, Kelly MP, Protopsaltis T, Sciubba DM, Soroceanu A, Klineberg EO, Burton DC, Hart RA, Schwab FJ, Bess S, Shaffrey CI, Ames CP, ISSG: Indicators for Nonroutine Discharge Following Cervical Deformity-Corrective Surgery: Radiographic, Surgical, and Patient-Related Factors, *Neurosurg*, 85(3):E509-E519, September 2019

Godzik J, Haglin JM, Alan N, **Hlubek RJ**, **Walker CT**, Bach K, **Mundis GM Jr**, **Turner JD**, Kanter AS, Okonwko DO, Uribe JS: Retrospective Multicenter Assessment of Rod Fracture After Anterior Column Realignment in Minimally Invasive Adult Spinal Deformity Correction, *World Neurosurg*, 130:e400-e405, October 2019

Mummaneni PV, Park P, Shaffrey CI, Wang MY, Uribe JS, Fessler RG, Chou D, Kanter AS, Okonkwo DO, **Mundis GM**, **Eastlack RK**, Nunley PD, Anand N, Virk MS, Lenke LG, Than KD, Robinson LC, Fu KM, ISSG: The MISDEF2 Algorithm: An Updated Algorithm for Patient Selection in Minimally Invasive Deformity Surgery, *J Neurosurg Spine*, 32(2):221-228, October 2019

Neuman BJ, Harris A, Jain A, Kebaish KM, Sciubba DM, Klineberg EO, Kim HJ, Zebala L, **Mundis GM**, Lafage V, Passias P, Lafage R, Protopsaltis TS, Bess S, Hamilton DK, Scheer JK, Ames CP, ISSG: Reciprocal Changes in Cervical Alignment After Thoracolumbar Arthrodesis for Adult Spinal Deformity, *Spine (Phila Pa 1976)*, 44(22):E1311-E1316, November 2019

Horn SR, Passias PG, Bortz CA, Pierce KE, Lafage V, Lafage R, Brown AE, Alas H, Smith JS, Line B, Deviren V, **Mundis GM**, Kelly MP, Kim HJ, Protopsaltis T, Daniels AH, Klineberg EO, Burton DC, Hart RA, Schwab FJ, Bess S, Shaffrey CI, Ames CP, ISSG: Predicting Extended Operative Time and Length Of Inpatient Stay in Cervical Deformity Corrective Surgery, *J Clin Neurosci*, 69:206-213, November 2019

Horn SR, Passias PG, Oh C, Lafage V, Lafage R, Smith JS, Line B, Anand N, Segreto FA, Bortz CA, Scheer JK, **Eastlack RK**, Deviren V, Mummaneni PV, Daniels AH, Park P, Nunley PD, Kim HJ, Klineberg EO, Burton DC, Hart RA, Schwab FJ, Bess S, Shaffrey CI, Ames CP, ISSG: Predicting the Combined Occurrence of Poor Clinical and Radiographic Outcomes Following Cervical Deformity Corrective Surgery, *J Neurosurg Spine*, 32(2):182-90, February 2020

Helenius IJ, Saarinen AJ, White KK, **McClung A**, Yazici M, Garg S, Thompson GH, Johnston CE, Pahys JM, Vitale MG, **Akbarnia BA**, Sponseller PD: Results of Growth-Friendly Management of Early-Onset Scoliosis in Children with And Without Skeletal Dysplasias, A Matched Comparison, *Bone Joint J*, 101-B:1563-1569, December 2019

Guzman JZ, Larson AN, Sanders JO, Newton PO, Berven S, **Mundis G Jr**, Dimar JR 2nd, Albert TJ, Sethi RK, **Shah SA**. New Paradigms in the Continuum of Spine Care: From Newborns to Elderly Patients, *Instr Course Lect*, 68:289-304, 2019

Kim HJ, Wang SJ, Lafage R, Iyer S, Shaffrey C, **Mundis G**, Hostin R, Burton D, Ames C, Klineberg E, Gupta M, Smith J, Schwab F, Lafage V, ISSG: Recurrent Proximal Junctional Kyphosis: Incidence, Risk Factors, Revision Rates and Outcomes at 2 Year Minimum Follow-Up, *Spine (Phila Pa 1976)*, 45(1):E18-E24, January 2020

Segreto FA, Passias PG, Lafage R, Lafage V, Smith JS, Line BG, **Mundis GM**, Bortz CA, Stekas ND, Horn SR, Diebo BG, Brown AE, Ihejirika Y, Nunley PD, Daniels AH, Gupta MC, Gum JL, Hamilton DK, Klineberg EO, Burton DC, Hart RA, Schwab FJ, Bess S, Shaffrey CI, Ames CP: Incidence of Acute, Progressive, and Delayed Proximal Junctional Kyphosis Over an 8-Year Period in Adult Spinal Deformity Patients, *Oper Neurosurg (Hagerstown)*, 18(1):75-82, January 2020

Plais N, Bao H, Lafage R, Gupta M, Smith JS, Shaffrey C, **Mundis G**, Burton D, Ames C, Klineberg E, Bess S, Schwab F, Lafage V, ISSG: The Clinical Impact of Global Coronal Malalignment is Underestimated in Adult Patients with Thoracolumbar Scoliosis, *Spine Deform*, 8(1):105-113, January 2020

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Both Greg Mundis and Bob Eastlack served as panelists and speakers at the 2019 SRS Annual Meeting in Montreal, Quebec, Sept. 2019

Protosaltis TS, Ramchandran S, Tishelman JC, Smith JS, Neuman BJ, **Mundis GM Jr**, Lafage R, Klineberg EO, Hamilton DK, Lafage V, Gupta MC, Hart RA, Schwab FJ, Burton DC, Bess S, Shaffrey CI, Ames CP, ISSG: The Importance of C2-Slope, a Singular Marker of Cervical Deformity, Correlates with Patient Reported Outcomes, *Spine (Phila Pa 1976)*, 45(3):184-192, February 2020

Kim HJ, York PJ, Elysee JC, Shaffrey C, Burton DC, Ames CP, **Mundis GM Jr**, Hostin R, Bess S, Klineberg E, Smith JS, Passias P, Schwab F, Lafage R, ISSG: Cervical, Thoracic, and Spinopelvic Compensation After Proximal Junctional Kyphosis (PJK): Does Location of PJK Matter? *Global Spine J*, 10(1):6-12, February 2020

Protosaltis TS, Soroceanu A, Tishelman JC, Buckland AJ, **Mundis GM Jr**, Smith JS, Daniels A, Lenke LG, Kim HJ, Klineberg EO, Ames CP, Hart RA, Bess S, Shaffrey CI, Schwab FJ, Lafage V, ISSG: Should

Sagittal Spinal Alignment Targets for Adult Spinal Deformity Correction Depend on Pelvic Incidence and Age? *Spine (Phila Pa 1976)*, 45(4):250-257, February 2020

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Passias PG, Bortz CA, Lafage V, Lafage R, Smith JS, Line B, **Eastlack R**, Gupta MC, Hostin RA, Horn SR, Segreto FA, Egers M, Sciubba DM, Gum JL, Kebaish KM, Klineberg EO, Burton DC, Schwab FJ, Shaffrey CI, Ames CP, Bess S: Durability of Satisfactory Functional Outcomes Following Surgical Adult Spinal Deformity Correction: A 3-Year Survivorship Analysis. *Oper Neurosurg (Hagerstown)*, 18(2):118-125, February 2020

Bachabi M, **McClung A**, **Pawelek JB**, El Hawary R, Thompson GH, Smith JT, Vitale MG, **Akbarnia BA**, Sponseller PD, CSSG, GSSG: Idiopathic Early-Onset Scoliosis: Ribs Versus Vertically Expandable Prosthetic Titanium Ribs at 5-Year Follow-Up, *J Pediatr Orthop*, 40(3):142-148, March 2020



Godzik J, Pereira BA, Newcomb AGUS, Lehrman JN, **Mundis GM Jr**, **Hlubek RJ**, Uribe JS, Kelly BP, **Turner JD**: Optimizing Biomechanics of Anterior Column Realignment for Minimally Invasive Deformity Correction, *Spine J*, 20(3):465-474, March 2020

Virk S, Passias P, Lafage R, Klineberg E, **Mundis G**, Protosaltis T, Shaffrey C, Bess S, Burton D, Hart R, Kim HJ, Ames C, Schwab F, Smith J, Lafage V, ISSG: Intraoperative Alignment Goals for Distinctive Sagittal Morphotypes of Severe Cervical Deformity to Achieve Optimal Improvements in Health-Related Quality of Life Measures, *Spine J*, S1529-9430(20)30107-8, March 2020

Hosseini P, **Eghbali A**, **Pawelek J**, Heskett K, **Mundis GM**, **Akbarnia BA**: A High Degree of Variability Exists in How "Safety and Efficacy" Is Defined and Reported in Growing Rod Surgery for Early Onset Scoliosis: A Systematic Review, *Spine Deformity Journal*, 8(2):269-283, April 2020



Caridi JM, Mesfin A, **Mundis GM**, Thompson GH: A Fellowship of Firsts: Report of the 2019 SRS Traveling Fellowship, *Spine Deform*, 8(2):157-164, April 2020

Angevine PD, Bray D, Cloney M, **Malone H**: Uncertainty in the relationship between sagittal alignment and patient-reported outcomes. *Neurosurgery*, 86(4): 485-491, April 2020

Wang MY, Uribe J, Mummaneni PV, **Tran S**, Brusko GD, Park P, Nunley P, Kanter A, Okonkwo D, Anand N, Chou D, Shaffrey CI, Fu KM, **Mundis GM Jr**, **Eastlack R**, MIS-ISSG: Minimally Invasive Spinal Deformity Surgery: An Analysis of Patients That Fail to Reach Minimal Clinically Important Difference (MCID), *World Neurosurgery*, 137:e499-e505, May 2020

Segreto FA, Passias PG, Brown AE, Horn SR, Bortz CA, Pierce KE, Alas H, Lafage V, Lafage R, Smith JS, Line BG, Diebo BG, Kelly MP, **Mundis GM**, Protosaltis TS, Soroceanu A, Kim HJ, Klineberg EO, Burton DC, Hart RA, Schwab FJ, Bess S, Shaffrey CI, Ames CP: The Influence of Surgical Intervention and Sagittal Alignment on Frailty in Adult Cervical Deformity, *Oper Neurosurg (Hagerstown)*, 18(6):583-589, June 2020

Wang MY, Park P, **Tran S**, Anand N, Nunley P, Kanter A, Fessler R, Uribe J, **Eastlack R**, Shaffrey CI, Bess S, **Mundis GM Jr**, Brusko GD, Mummaneni PV, MIS-ISSG Group: Intermediate-Term Clinical and Radiographic Outcomes with Less Invasive Adult Spinal Deformity Surgery: Patients with a Minimum Follow-Up Of 4 Years, *Acta Neurochir (Wien)*, 162(6):1393-1400, June 2020

Walker CT, Kim HJ, Park P, Lenke LG, Weller MA, Smith JS, Nemergut EC, Sciubba DM, Wang MY, Shaffrey C, Deviren V, Mummaneni PV, Chang JM, Mummaneni VP, Than KD, Berjano P, **Eastlack RK**, **Mundis GM Jr**, Kanter AS, Okonkwo DO, Shin JH, Lewis JM, Koski T, Hoh DJ, Glassman SD, Vinci SB, Daniels AH, Clavijo CF, **Turner JD**, McLawhorn M, Uribe JS: Neuroanesthesia Guidelines for Optimizing Transcranial Motor Evoked Potential Neuromonitoring During Deformity and Complex Spinal Surgery: A Delphi Consensus Study, *Spine (Phila Pa 1976)*, 45(13):911-920, July 2020

Yang J, Lafage R, Gum JL, Shaffrey CI, Burton D, Kim HJ, Ames CP, **Mundis G Jr**, Hostin R, Bess S, Klineberg EO, Smith J, Schwab F, Lafage V, ISSG: Group-Based Trajectory Modeling: A Novel Approach to Classifying Discriminative Functional Status Following Adult Spinal Deformity Surgery: Study of a 3-Year Follow-Up Group, *Spine (Phila Pa 1976)*, 45(13):903-910, July 2020

Podium Presentations

Klyce W, Mitchell SL, **Pawelek J**, Skaggs DL, Sanders JO, Shah SA, McCarthy RE, Luhmann SJ, Sturm PF, Flynn JM, Smith JT, Vitale MG, **Akbarnia BA**, Sponseller PD, CSSG, GSSG: Current Use in Growth-Friendly Implants for Early Onset Scoliosis: A Ten-Year Update, *Paper #62*, Scoliosis Research Society 54th Annual Meeting, Montreal, Canada, September 18-21, 2019



Skaggs DL, **Akbarnia BA**, **Pawelek J**, Matsumoto H, St. Hilaire T, Sturm PF, Perez-Grueso FJS, Luhmann SJ, Sponseller PD, Smith JT, White KK, Vitale MG, CSSG, GSSG: Magnetically-Controlled Growing Rod Patients Have Similar HRQOL Scores Compared to Traditional Growing Rod Patients After Two Years of Treatment, *Paper #63*, Scoliosis Research Society 54th Annual Meeting, Montreal, Canada, September 18-21, 2019



Williams BA, **McClung A**, Blakemore LC, **Shah SA**, **Pawelek J**, Sponseller PD, Parent S, Emans JB, Sturm PF, Yaszay B, **Akbarnia BA**, GSSG: Spinal MRI Utilization in Patients with Early Onset Scoliosis Review of a Large Multi-Center Database, *Paper #151*, Scoliosis Research Society 54th Annual Meeting, Montreal, Canada, September 18-21, 2019



Wewel JT, Ozpinar A, Martirosyan NL, **Walker CT**, **Mundis GM**, Kanter AS, Uribe JS: Clinical Implications of Lateral Access to the Concavity Side for Adult Spinal Deformity, *Paper #38*, Scoliosis Research Society (SRS) 54th Annual Meeting, Montreal, Canada, September 18-21, 2019

Lafage R, Smith JS, Elysée JC, Passias PG, Bess S, Klineberg EO, Kim HJ, Shaffrey CI, Burton DC, Hostin R, **Mundis GM**, Ames CP, Schwab FJ, Lafage V, ISSG: Comprehensive Alignment Planning (CAP) for Adult Spinal Deformity (ASD) More Effectively Predicts Surgical Outcomes and Proximal Junctional Kyphosis Than Previous Classifications, *Paper #116*, Scoliosis Research Society (SRS) 54th Annual Meeting, Montreal, Canada, September 18-21, 2019



Behrooz Akbarnia is honored to serve as the First Annual Bagus Lecturer at Case Western Reserve / Rainbow Babies and Children's Hospital, Cleveland, Oct. 2019

Bess S, Line BG, Kelly MP, Baldus C, Ames CP, Burton DC, Yanik EL, **Eastlack RK**, Gupta MC, Klineberg EO, Kebaish KM, Kim HJ, Gum JL, Hostin R, **Mundis GM**, Lafage V, Schwab FJ, Shaffrey CI, Smith JS, Bridwell KH, ISSG: Preop Opioid Use is Associated with Worse Postop Outcomes and Chronic Opioid Use in Non-Revision Adult Scoliosis Patients: Corroboration of Two Independent Multi-center Studies, *Paper #125*, Scoliosis Research Society (SRS) 54th Annual Meeting, Montreal, Canada, September 18-21, 2019

Bess S, Line BG, Kelly MP, Gum JL, Hostin R, Kebaish KM, Ames CP, Burton DC, **Mundis GM**, **Eastlack RK**, Hart RA, Gupta MC, Klineberg EO, Kim HJ, Lafage V, Schwab FJ, Shaffrey CI, Smith JS, ISSG: Preoperative Opioid Therapy Poorly Controls Pain in Non-revision Adult Spinal Deformity (ASD) and Increases Risk for Chronic Postoperative Opioid Usage, *Paper #126*, Scoliosis Research Society (SRS) 54th Annual Meeting, Montreal, Canada, September 18-21, 2019

Klineberg EO, Lafage R, Gupta MC, Hart RA, **Mundis GM**, Bess S, Burton DC, Ames CP, Smith JS, Shaffrey CI, Schwab FJ, Passias PG, Protosaltis TS, Lafage V, ISSG: Comprehensive Complication Classification for Adult Spinal Deformity: Complication Timing and the Impact on Outcomes at 2 Years, *Paper #129*, Scoliosis Research Society (SRS) 54th Annual Meeting, Montreal, Canada, September 18-21, 2019

Eastlack RK, **Tran S**, Soroceanu A, Passias PG, Protosaltis TS, Smith JS, Klineberg EO, Lafage V, Hamilton DK, Kim HJ, **Mundis GM**, Shaffrey CI, Ames CP, ISSG: Are Posterior Osteotomies Warranted When Managing Mild Flexible Cervical Deformity? *Paper #162*, Scoliosis Research Society (SRS) 54th Annual Meeting, Montreal, Canada, September 18-21, 2019

Eastlack RK, Uribe JS, Fessler RG, Than KD, **Tran S**, Chou D, Park P, Fu, K-M G, Wang MY, Kanter AS, Okonkwo DO, Nunley PD, **Mundis GM**, ISSG: Does ACR Result in Greater Morbidity Than LLIF Alone When Treating Adult Spinal Deformity? *Podium 206*, North American Spine Society (NASS) 2019 Annual Meeting Adult Cervical Spine Deformity Symposium, Chicago, IL, September 25-28, 2019

Eastlack RK, Fessler RG, Than KD, **Tran S**, Chou D, Chan AK, Fu, K-M G, Park P, Wang MY, Kanter A, Okonkwo DO, Nunley PD, Uribe JS, **Mundis GM**, ISSG: Two and Three Year Outcomes of Minimally Invasive and Hybrid Correction of Adult Spinal Deformity, *Podium 207*, North American Spine Society (NASS) 2019 Annual Meeting Adult Cervical Spine Deformity Symposium, Chicago, IL, September 25-28, 2019

Godzik J, Pereira BDA, Newcomb AG, Lehrman J, **Hlubek RJ**, **Mundis GM**, Uribe JS, Kelly B, **Turner JD**: Comprehensive

Biomechanical Profile of Anterior Column Realignment for Minimally Invasive Deformity Correction, *Podium 245*, North American Spine Society (NASS) 34th Annual Meeting, Chicago, IL, September 25–28, 2019

Chou D, Nunley P, **Eastlack R**, Uribe J, Fessler R, Than K, Park P, Fu K-M, Wang M, Kanter A, Okonkwo D, Anand N, **Mundis G**, Mummaneni P: Revision Surgery Rates in Patients Undergoing Minimally Invasive Adult Spinal Deformity Surgery: Is There a Correlation with Roussouly Spine Type? *Paper #48*, Society for Minimally Invasive Spine Surgery (SMISS), Annual Forum '19, Las Vegas, NV, October 31–November 2, 2019

Mummaneni P, Shaffrey C, **Eastlack R**, Uribe J, Fessler R, Robinson L, Rivera J, Chou D, Fu K-M, Kanter A, Okonkwo D, Nunley P, Than K: The Minimally Invasive Interbody Selection Algorithm for Spinal Deformity, *Paper #50*, Society for Minimally Invasive Spine Surgery (SMISS), Annual Forum '19, Las Vegas, NV, October 31–November 2, 2019

Mundis G, Park P, **Eastlack R**, Uribe J, **Tran S**, Ito K, Nunley P, Wang M, Fessler R, Anand N, Kanter A, Okonkwo D, Shaffrey C: A Prospective Analysis of Minimally Invasive Surgery for Adult Spinal Deformity: A Multicenter Study, *Paper #51*, Society for Minimally Invasive Spine Surgery (SMISS), Annual Forum '19, Las Vegas, NV, October 31–November 2, 2019

Eastlack R, Chou D, Uribe J, Fessler R, Than K, **Tran S**, Park P, Fu K-M, Wang M, Kanter A, Okonkwo D, Nunley P, Anand N, **Mundis G**, Mummaneni P, ISSG: Treatment of Adult Scoliosis Fractional Curve with Minimally Invasive Surgery: Anterior versus Posterior Approach? *Paper #52*, Society for Minimally Invasive Spine Surgery (SMISS), Annual Forum '19, Las Vegas, NV, October 31–November 2, 2019

Eastlack R, Uribe J, Fessler R, Than K, **Tran S**, Chou D, Park P, Fu K-M, Wang M, Kanter A, Okonkwo D, Nunley P, Anand N, Mummaneni P, **Mundis G**, ISSG: Does ACR Result in Greater Morbidity Than LLIF Alone When Treating Adult Spinal Deformity? *Paper #53*, Society for Minimally Invasive Spine Surgery (SMISS), Annual Forum '19, Las Vegas, NV, October 31–November 2, 2019

Hida T, **Mundis G**, **Eastlack R**: Psoas Muscle Mass are Maintained and No Progress of Fatty Degeneration After LLIF, *Paper #76*, Society for Minimally Invasive Spine Surgery (SMISS), Annual Forum '19, Las Vegas, NV, October 31–November 2, 2019

Godzik J, De Andrada B, Newcomb A, Lehrman J, **Hlubek R**, **Mundis G**, Uribe J, Kelly B, **Turner J**: Comparison of Biomechanical Stability and Rod Strain Between Anterior Column Alignment and Pedicle Subtraction Osteotomy, *Paper #89*, Society for Minimally Invasive Spine Surgery (SMISS), Annual Forum '19, Las Vegas, NV, October 31–November 2, 2019

Helenius I, Saarinen A, White K, **McClung A**, Yazici M, Garg S, Thompson GH, Johnston C, Pahys J, Vitale M, **Akbarnia BA**, Sponseller PD: Similar Deformity Correction, But Limited Spinal Growth and Lower Health Related Quality of Life in Children with Skeletal Dysplasia Undergoing Growth-Friendly Management for Early-Onset Scoliosis. A Matched Comparison with Idiopathic Early-Onset Scoliosis. 13th Annual International Congress on Early Onset Scoliosis. Atlanta, GA, November 21-22, 2019



Akbarnia BA, **Pawelek J**, **Hosseini P**, **Salari P**, **Kabirian N**, Marks D, Shah SA, Skaggs D, Emans J, **Elsebaie H**, Thompson G, Sponseller P: Traditional Growing Rod Graduates of Different Etiologic Categories Have Similar Clinical and Radiographic Outcomes. 13th Annual International Congress on Early Onset Scoliosis. Atlanta, GA, November 21-22, 2019



Greg Mundis, Jr. as invited speaker at 2019 SRS Annual Meeting in Montreal, Quebec, Sept. 2019

Passias PG, Brown AE, Pierce KE, Naessig S, Ahmad W, Diebo B, Lafage R, Lafage V, Ames C, Burton D, Anand N, Hart R, **Mundis G**, Neuman B, Line B, Shaffrey C, Klineberg EO, Smith J, Schwab F, Bess S, ISSG: A Risk Benefit Analysis of Increasing Surgical Invasiveness Relative to Frailty Status in Adult Spinal Deformity Surgery, *Paper #18*, 5th Annual International Spinal Deformity Symposium (ISDS), New York, NY, December 6–7, 2019

Hoel R, **Eastlack R**, **Rios F**, **Jelousi M**, Iannacone T, Spierling S, **Mundis G**: Does Adding Bone Mineral Density to GAP Score Help Predict Mechanical Failure in Adult Spinal Deformity Surgery? *Paper #4*, Spine: Base to Summit '20, Vail, CO, January 23–26, 2020

Godzik J, **Mundis G**, Mulholland C, **Walker C**, **Turner JD**, Uribe J, **Eastlack R**: High Radiation Burden of Minimally Invasive Approaches to Adult Spinal Deformity, *Paper #11*, Spine: Base to Summit '20, Vail, CO, January 23–26, 2020

Murphy R, Barfield W, Emans J, **Akbarnia BA**, Sponseller P, Thompson G, Skaggs D, Marks D, Johnston C, Flynn J, St. Hilaire T, Sawyer J, Smith J: Five Year Radiographic Outcomes Following Discontinuation of Growth Friendly Surgery for Early Onset Scoliosis, *Paper 30*, 2020 Pediatric Orthopaedic Society of North America (POSNA) Virtual Meeting. May 13, 2020



Summary of Poster Exhibits

Passias PG, Brown A, Diebo BG, Lafage R, Lafage V, Ames CP, Burton DC, Anand N, Hart RA, **Mundis GM**, Neuman BJ, Line BG, Shaffrey CI, Klineberg EO, Smith JS, Schwab FJ, Bess S, ISSG: A Risk Benefit Analysis of Increasing Surgical Invasiveness Relative to Frailty Status in Adult Spinal Deformity Surgery, *E-Poster 227*, Scoliosis Research Society (SRS) 54th Annual Meeting, Montreal, Canada, September 18–21, 2019

Walker CT, Kim HJ, Park P, Lenke LG, Smith JS, Sciubba DM, Wang MY, Shaffrey CI, Deviren V, Mummaneni PV, **Turner JD**, Than KD, Berjano P, **Eastlack RK**, **Mundis GM**, Kanter AS, Okonkwo DO, Shin JH, Koski T, Glassman SD, Daniels AH, Clavijo C, McLawhorn M, Uribe JS, Neuroanesthesia Guidelines for Optimizing Transcranial Motor Evoked Potentials Neuromonitoring during Deformity and

Complex Spinal Surgery: A Delphi Consensus Study, *E-Poster 249*, Scoliosis Research Society (SRS) 54th Annual Meeting, Montreal, Canada, September 18–21, 2019

Kim HJ, Lafage R, Bess S, Smith JS, Klineberg EO, Ames CP, Shaffrey CI, Burton DC, Gupta MC, **Mundis GM**, Hostin R, Schwab FJ, Lafage V, ISSG: Risk Factors for Surgical Site Infection in Adult Spinal Deformity: An In-Depth Analysis in 1190 Surgical Cases with Floral Distribution, *E-Poster 252*, Scoliosis Research Society (SRS) 54th Annual Meeting, Montreal, Canada, September 18–21, 2019

Record N, Eastlack R, Tran S, Thibaudeau D, Carnelian A, Brady K, **Jelousi M, Akbarnia B, Mundis G**, Intraoperative Neuromonitoring for Lateral Lumbar Interbody Fusion: An Intra-operative Protocol to Decrease Postoperative Neurologic Deficit, *E-Poster #30*, Society for Minimally Invasive Spine Surgery (SMISS), Annual Forum '19, Las Vegas, NV, October 31–November 2, 2019

Helenius I, Vitale MG, **Akbarnia BA**, Sponseller PD, Saarinen AJ, White KK, **McClung A**, Yazici M, Garg S, Thompson GH, Johnston II CE, Pahys JM: Limited Spinal Growth and Lower Health Related Quality of Life in Children with Skeletal Dysplasia Undergoing Growth-Friendly Management for Early Onset Scoliosis: A Matched Comparison with Idiopathic Early-Onset Scoliosis. 2020 American Academy of Orthopaedic Surgeons Virtual Annual Meeting.



Kim HJ, **Mundis GM**, Hostin RA, Schwab FJ, Lafage V, ISSG, Lafage R, Bess RS, Smith JS, Klineberg EO, Ames C, Shaffrey CI, Burton DC, Gupta MC: Risk Factors for Surgical Site Infection in Adult Spinal Deformity: An In-Depth Analysis in 1,190 Surgical Cases with Floral Distribution. 2020 American Academy of Orthopaedic Surgeons Virtual Annual Meeting.

Ayres EW, Bess RS, Shaffrey CI, Schwab FJ, Lafage V, Ames C, ISSG, Protopsaltis TS, Lafage R, **Mundis GM**, Smith JS, Hamilton DK, Klineberg EO, Sciubba D, Hart RA: Predicting the Magnitude of Distal Junctional Kyphosis Following Cervical Deformity Correction. 2020 American Academy of Orthopaedic Surgeons Virtual Annual Meeting.

Passias PG, Hamilton DK, Kim HJ, Bess RS, Protopsaltis TS, **Eastlack RK**, Shaffrey CI, Schwab FJ, Smith JS, Ames C, ISSG, Pierce KE, Lafage R, Lafage V, Line BG, Klineberg EO, Burton DC, Daniels AH, Gum J: Redefining Cervical Spine Deformity Classification Through Novel Cut-Offs: An Assessment of the Relationship Between Radiographic Parameters and Functional Neurological Outcomes. 2020 American Academy of Orthopaedic Surgeons Virtual Annual Meeting.



SDSF Board Members Peter Newton, Greg Mundis and former member Behrooz Akbarnia, participate on an SRS Board of Directors Zoom call

Invited Speakers



Hibbs Society Meeting, Montreal, Canada, September 17, 2019 – **Gregory M. Mundis, Jr., MD**

Scoliosis Research Society (SRS) 54th Annual Meeting, Montreal, Canada, September 18–21, 2019 – **Gregory M. Mundis, Jr., MD**

North American Spine Society (NASS) 2019 Annual Meeting Adult Cervical Spine Deformity Symposium, Chicago, IL, September 25–28, 2019 – **Robert K. Eastlack, MD**

Iranian Spine Society, Tehran, Iran, October 21, 2019 – **Behrooz A. Akbarnia, MD**

Bagus Visiting Professorship, Rainbow Babies and Children's Hospital, Cleveland, OH, October 29, 2019 – **Behrooz A. Akbarnia, MD**

Inaugural Bagus Visiting Professorship in Pediatric Spinal Deformity, Rainbow Babies and Children's Hospital, Case Western Reserve University, Cleveland, OH, October 30, 2019 – **Behrooz A. Akbarnia, MD**

Society for Minimally Invasive Spine Surgery (SMISS), Annual Forum '19, Las Vegas, NV, October 31–November 2, 2019 – **Gregory M. Mundis, Jr., MD, Robert K. Eastlack, MD**

Young Surgeons Spine Summit West, Rancho Santa Fe, CA, November 8–9, 2019 – **Gregory M. Mundis, Jr., MD**

9th UCSF Annual Techniques in Complex Spine Surgery Course, Las Vegas, NV, November 8–9, 2019 – **Robert K. Eastlack, MD**

13th International Congress on Early Onset Scoliosis (ICEOS), Atlanta, GA, November 21–22, 2019 – **Behrooz A. Akbarnia, MD**

5th Annual International Spinal Deformity Symposium (ISDS), New York, NY, December 6–7, 2019 – **Gregory M. Mundis, Jr., MD**

13th New York City Spinal MIS, Endoscopy, Robotics, 3D Navigation, and Augmented Reality Symposium: Case-based and Hands-on, New York, NY, December 12–14, 2019 – **Gregory M. Mundis, Jr., MD, Robert K. Eastlack, MD**

Spine: Base to Summit '20, Vail, CO, January 23–26, 2020 – **Gregory M. Mundis, Jr., MD**

15° Curso Internacional, Cirugía Reconstructiva de Columna, Scoliosis Research Society, (SRS), Cartagena, Colombia, February 20–22, 2020 – **Gregory M. Mundis, Jr., MD**

AOSpine North America Virtual Banff Fellows Forum 2020 – **Gregory M. Mundis, Jr., MD**

2020 San Diego Visiting Professorship Annual Meeting, July 31, 2020 – **Jakub Godzik, MD, Ryan Hoel, MD, Robert K. Eastlack, MD, Ruwan Ratnayake, MD, Corey Walker, MD**



Camila's Story – Meet a Superhero



Superheroes Come in All Sizes!

Meet Camila. From the day that the Global Spine Outreach (GSO) team first casted her, and more recently *crowned* her in her Halo-Gravity wheelchair, she has shown us that princesses can truly be undercover superheroes.

Even during these unprecedented times, not a single follow-up visit has passed without her unique spark shining in the office. At 4 years of age, Camila first met the team back in 2015 on GSO's first mission trip to Chihuahua, México. She was diagnosed with a rare condition known as Spondyloepiphyseal Dysplasia (SED), a form of short-trunk dwarfism that primarily affects the vertebrae and epiphysis of bones, and can cause a myriad of complications including cervical spine instability, severe skeletal and spinal deformity, respiratory insufficiency and problems with vision, to mention just a few. And, although she has proven to be a true superhero by continuously teaching us true bravery and nobility, the

superhero-gene runs in the family, as we couldn't have come this far without Mom and Dad who constantly remind us that the purest form of limitless love comes from a parent.

When her parents, Cinthia and Carlos, noticed that Camila's 2-year-old's spine started to show a slight curvature, they immediately started to take action, researching the best treatment options regardless of whether this was locally available or economically feasible. By age 3, Camila already had several procedures to take care of some of the general non-spine skeletal deformities that encompass her condition. Her family had already traveled across the country and had several opinions, though not as encouraging as they'd hope for, as her spinal deformity was already hitting the 70° mark and was rapidly progressing.

At age 4, we were blessed to be part of Camila's care by beginning a casting protocol in an effort to slow down the progression of her spinal deformity and buy some time for her to reach a skeletal bone maturity, enough to safely undergo the first of several procedures that would ultimately prepare her for her definitive surgical treatment.

Even though her curve kept progressing, the casting protocol succeeded by slowing down this progression, so we began to plan the first of many procedures. This would consist of implanting in her spine titanium screws and rods that would guide her spinal growth and allow her lungs and body to mature, before the final and definitive spinal fusion surgery, by lengthening the spine twice a year with smaller surgical procedures. But due to the severity of her spinal curve, she first needed to be placed in a special wheelchair that would

apply traction to her spine by a device (Halo) pinned to her head for several months and using gravity as a force to straighten and lengthen her spine.

Unfortunately, these special wheelchairs were not locally available, so the implantation of her growing rods had to be put on hold. Then it was time for the *parental* superheroes to jump in.

Dad started to work with her surgeon, and by collaborating with the local news station, they designed an adapted traction-ready wheelchair for Camila, while Mom was busy running fundraisers to pay for this expensive wheelchair.

Once ready, it was time to place her halo, or as Camila would positively and accurately describe it: her crown. This device was painlessly screwed with 6 pins to her skull and was planned to be worn for 3-4 months to prepare her for her Growing Rods. *Cami's* reaction to her halo was surprising, her level of understanding was beyond her age, which wasn't a surprise to anyone. But her reaction to her wheelchair was a different story.



You could see a hint of discontent towards it, but the reason behind it was unclear. Finally, once painted pink it was a whole different story as Cami really enjoyed to be in her chair. She was very diligent to maintain the suggested daily hours in it and Dad showed us, one more time, his love towards Cami by engineering a pulley system that would maintain traction even while in bed in order to maximize the results from her traction. She immediately started to gain weight, her back pain rapidly began to disappear, and despite small hiccups related to implant transportation and other logistic-related events, everything was right on track for her Growing Rods surgery... until the current and tragic pandemic began.

Like many families around the world, Camila's family was strongly affected by this deadly virus. After years of mentally, physically and spiritually preparing for her surgery, travel restrictions made GSO's mission trips impossible to take place, and like many of our patients, Camila's treatment was once again placed on hold. Currently, at age 9, she was placed in a new cast in efforts to maintain what was gained with 4 months of halo traction.

Cami and her family have a very special place in our hearts. We have been through many things together, we have shared many laughs, and, we have shared many frustrations. But, even though Camila suffers from this rare condition, she and her family have not allowed this to take over of their lives. She has proven to be anything but a delicate princess, and more like those who have superpowers, like the ones we see on TV and movies. We are very thankful to be part of her story and we wish to continue this friendship even after we are done taking care of her spine.



So, who is Camila? Like many Mexican kids, she loves *enchiladas* and *mazapanes*. She spends most of her days dancing, singing and listening to music; pretty much like every 9-year-old. But as you just read, she is no ordinary kid.

She has proven to be a noble princess, and more remarkably, an undercover superhero. And we are blessed to be a part of her family.

**By Fernando Rios, MD
SDSF Research Fellow**

SDSF would like to thank Camila and her parents for sharing her story and we hope that someday soon she will be able to take the next step towards her final spinal treatment.

SDSF also thanks Dr. Fernando Rios, our current SDSF Research Fellow, who initially was introduced to SDSF through our joint mission trips with Global Spine Outreach (GSO). Dr. Rios demonstrates the type of love, caring, dedication and drive necessary to care for all patients with severe spinal deformities. Fern, we are so proud of you and are honored to have you as a part of our SDSF Family!

<https://www.sandiegospinefoundation.org/patients/stories/>





Behrooz Akbarnia is a Visiting Professor at Shafa Hospital, Tehran, Iran, Oct. 2019



Fall 2019 faculty dinner meeting at the SDSF Office

Building Bridges in the Spine Community



Chris Parr joins past and present SDSF Fellows and faculty gathering in Montreal, Quebec, Sept. 2019. From Left, Chris Parr, Amrit Khalsa, Behrooz Akbarnia, Ruwan Ratnayake, Pooria Salari, Vikas Varma and Ryan Hoel



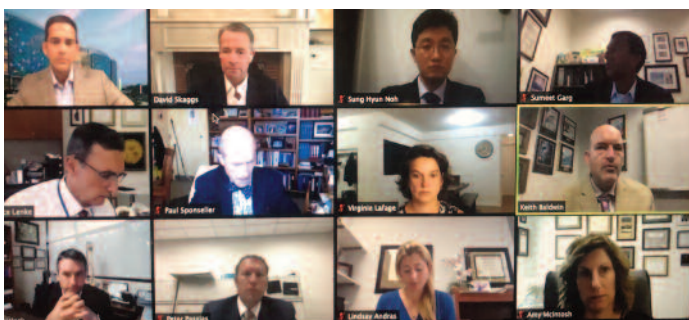
Dr. Mundis, Bagheri and Akbarnia at SRS Annual Meeting, Montreal, Quebec, Sept. 2019



SDSF past and present staff and faculty on Zoom: Pat Kastial, Mai Lee, Behrooz Akbarnia, Stacie Tran, Hazem Elsebaie, Jeff Pawelek, Pooria Hosseini and Pooria Salari celebrate a long awaited manuscript submission, June, 2020



SDSF fellow Ryan Hoel, past fellow Amrit Khalsa and GSO Executive Director, Melissa Hicks at Nov. 2019 GSO Mission Trip to Cali, Columbia



Bob Eastlack participates as faculty at SRS Annual Meeting, Sept. 2020



Last day of Fellowship for Ruwan Ratnayake and Ryan Hoel, July 31, 2020

UCSD Endowed Chair in Spinal Surgery

This past year has challenged the resiliency and resolve for every faculty member within the Department of Orthopaedic Surgery at UC San Diego. Never in history has the department been faced with unprecedented health and economic challenges all while maintaining a level of excellence in clinical care, research and education. Because of your support, the Behrooz and Nasrin Akbarnia Endowed Chair in Spinal Surgery represents hope for the future and a commitment to San Diego Community and this tripartite mission. However, because of all the challenges faced this year, there have been some unexpected delays in beginning the recruitment search for the chairholder.

With an optimistic focus on 2021, next year represents a new chapter as the department will be welcoming Susan V. Bukata, MD as the new Chair of Orthopaedic Surgery. Dr. Bukata brings with her a fresh perspective on leadership, teaching, research, and clinical management. She will also further build on the vision of creating a city of spinal excellence by leading the recruitment and national search for the Akbarnia chair. Under her leadership and the support of Community, the department aims to recruit, announce, and welcome the inaugural chairholder who will embody all the tremendous values and vision presented by Dr. Behrooz Akbarnia.

With cautious optimism, UC San Diego looks forward to inviting you to this chair celebration next year.



In the meantime,



our collaborative research



is already underway...

SDSF Research Progress

by Bahar Shahidi, PhD, SDSF Research Consultant

SDSF, in collaboration with multiple San Diego community clinical sites, has moved its research agenda forward substantially this past year. One of the most notable accomplishments is the completion of a pilot study for the development of a common toolkit for spine outcomes in San Diego. This project involved the initiation of data collection across multiple sites across the San Diego Mesa including Scripps Health, UC San Diego, Spine Institute of San Diego, and Rady Children's Hospital. With this data, we are moving forward with our goal of establishing a dashboard where clinicians and researchers can learn more about how to best optimize clinical outcomes in patients with spinal pathology.

The research progress of the San Diego Spine community has also had a great year for initiating and securing collaborative grants. An example of this is a recent NIH R01 awarded to Drs. Bahar Shahidi (UCSD) and Kamshad Raiszadeh (SpineZone) investigating the influence of analgesic medications on patient responsiveness to exercise-based rehabilitation. This multi-million-dollar, 5-year grant is representative of the convergence of academic and clinical missions with the collective goal of improving practice. In addition to this example, several other grants have been submitted to organizations like the Scoliosis Research Society and the Scripps Clinical Medical Group on varying topics ranging from basic biomechanics properties of spinal ligament and cervical fusion hardware, to the impact of a transdisciplinary spinal conference on clinical outcomes.

We look forward to continued collaborations and research successes in the coming year!



Farewell From Pat Kostial



It is with bittersweetness that I write my final Executive Director's note to you, as I am retiring in December, 2020. My reasons are many, largely related to family and friends, who at long last will be able to enjoy nearly 100% of my time and attention.

There are so many I'd like to thank. First, to our Board of Directors, who supported my work and trusted me to represent SDSF in the best possible way. I was always confident you had my back. Global Spine Outreach (GSO) allowed me to reengage clinically through mission trips that included patient care and education of both patients/families and nursing staff. Those trips reignited my passion for service that I am thankful for and hope to continue, as time and health permits. To all our past and present fellows, SDSF staff and former SDCSD staff: you helped me grow as a manager, mentor and friend. When we refer to these individuals as lifetime members of the SDSF family, we mean it in every possible sense of the word. To all our industry supporters who regularly fund our programs and educational events, you are such an awesome group to work with, believing in our mission year after year! Thank you from the bottom of my heart.



Pat prepares spine deformity implant and instrument trays for donation from SDSF to FOCOS Orthopedic Hospital, Ghana, West Africa, Fall 2014

I need to reach out to 2 individuals who have donated their time, their skills and energy to SDSF. Jennifer Rushall, who has volunteered happily year after year as the photographer for our VP events as well as telling her story in the 2019 Annual Report. Jenn, keep your passion alive and continue pursuing your love of life. And Brian Greer of Go Image Media Services. This is a man, who has helped SDSF in countless

ways by building, then rebuilding our website with plans for yet another major update soon. He is also the brainpower behind the assembly of our beautiful Annual Reports. Each year Brian and I pour over these pages again and again, tweaking repeatedly until it's just right. I learned so much from him and have gained such a wonderful friend in the process. And, I have laughed until I've cried from his incredible Scottish-rooted humor. Brian, you are one in a million and I'm honored to be considered your friend.

To our past and present Fellowship faculty: thanks for putting up with my manic emails and task master traits! I will keep my whip app on my phone and fondly remember you! I can't think of a better bunch of physicians (and their staff) to work with. Each of you truly care for your patients, not just their spines, but the whole individual and the impact any treatment may have on the quality of their lives. You are giants in my mind among your peers and it's been an honor to work with each of you. To everyone else not included above, thank you for being there for me! This has been such a wonderful ride.



Behrooz Akbarnia and Pat Niemann Kostial on St. Louis University research trip to visit James Weinstein and fellow at University of Iowa to review their nonoperative treatment experience of severe Burst fractures. Spring, 1990

My profound thanks goes to a man we fondly refer to as "Dr. A". Behrooz Akbarnia and I have a unique relationship dating back to 1985. He ignited a spark in me; a passion for spine care, when I worked in the O.R. at Cardinal Glennon Children's Hospital in St. Louis, that continues to drive me today. He is a tireless mentor who has driven me, and so many others, to accept nothing less than excellence. Also known as our "Godfather", Behrooz has become a close friend over the years, and as such, he can't get rid of me that easily! I am happy to announce I will continue to work part-time for him as his Executive Assistant for as long as we both are able and willing. And, I will remain on the SDSF Board of Directors for as long as the board wishes me to serve.

So, I turn the reins over to Tressa Goulding, CAE, who recently retired as E.D. for the Scoliosis Research Society.



BAA and Pat enjoying the 2009 SRS Annual Meeting in San Antonio, Texas

This excites me greatly, having witnessed first-hand, as a member of SRS, all the great things Tressa has done to elevate SRS to the top as the preeminent spine society of the world. In addition, Mai Lee, aPHR has fully assumed the role of Fellowship Administrator as well as managing our academic programs. Mai's background in H.R. and project management gave her a unique skill set that has taken our programs to the next level. As such, I am looking forward to the positive evolution of our programs in the months and years to come. Mai, you can do anything to which you set your mind. Now fly!

Lastly, I now wish to thank each of you, especially our donors, for believing in me, our mission as it has transformed over the years, and, in SDSF. I depart with my heart full and my soul content that those who have replaced me will do so with expertise and passion for SDSF.



Pat and Dr. Akbarnia enjoy a brief moment of site seeing at the Blue Mosque, following the 2009 ICEOS Meeting in Istanbul, Turkey

Executive Director



It is with great pleasure that I write my first message for the SDSF Annual Report, as I have admired the accomplishments of this organization for several years. Like so many other organizations, SDSF has had to adjust to a new reality created by the pandemic of 2020. As outlined in this publication, leadership has risen to the challenge and continued their outstanding work.

2021 holds even more promise. New mission and vision statements from 2019 emphasize education and mentorship in addition to research, outreach and advocacy. With that in mind, a new educational program, the West Coast Spine Conference, will debut this year. Headed by SDSF faculty member Hani Malone, MD and Fellowship Administrator Mai Lee, aPHR, the conference will provide virtual education to spine training programs in California, Oregon and Washington. The program will include didactic presentations, case presentations and discussions to enhance learning of spine fellows and to promote mentorship within and among all participating programs.

The SDSF Annual Visiting Professorship Meeting will resume on Friday, July 30th at the Hilton La Jolla Torrey Pines Hotel. This year will include a new webinar component during the live meeting to expand the educational reach. We will also continue to partner with Global Spine Outreach (GSO) to provide education for SDSF fellows and to serve children outside the U.S. who need spine deformity surgery.

Research continues to be a high priority as well, and we look forward to more exciting news as collaborative efforts with UCSD and other San Diego spine institutions move forward. The new year will also see the naming of the Akbarnia and Owsia UCSD Endowed Spine Chair.

We are sincerely grateful to those who have supported SDSF through the years. I hope that you are pleased with the results of that support and that you will find value in continuing it.



About the Cover

Our cover represents the explosion in spine advances over the past few years.

This image rendition is based on the remarkable work of Anne Cotrel. Those illustrations were provided as a courtesy of Anne Cotrel and the Cotrel Foundation. Anne graduated from the Ecole Supérieure Des Arts Décoratifs – Paris, and also holds a B.A. in Visual Art from Concordia University, Montreal, Quebec.

Anne has lived and worked in Canada, Italy and German speaking Switzerland. Her last personal exhibit took place at the Centre Culturel Zoroastre in Paris, April, 2014. The proceeds from Anne's art sales help to support the Cotrel Foundation.



Brian Greer

The SDSF would like to again thank Brian Greer, President of GoImage Media Services for his ongoing contributions including the development of our Annual Reports since 2013 and for our website development and management: www.sandiegospinefoundation.org.

2021 SAN DIEGO VISITING PROFESSORSHIP and WEBINAR



Muharrem Yazici, MD
Professor of Orthopedic Surgery
Hacettepe University
Faculty of Medicine
Ankara, Turkey
President of SRS, 2020-2021
Past President of EPOS 2012-2013

SAVE THE DATE!
Friday July 30th, 2021

Hilton La Jolla Torrey Pines Hotel
La Jolla, California



Eric O. Klineberg, MD
Co-Director, Spine Center
Chief of Spine Service
Professor, Department of
Orthopaedic Surgery
University of California, Davis
Sacramento, California



How can you support the San Diego Spine Foundation?

SDSF has established an Endowment Fund for those who wish to contribute to support the foundation's research, education and outreach efforts for years to come. SDSF also accepts donations for current use to cover operating expenses.

For credit/Debit card donations: <https://www.sandiegospinefoundation.org/donate/>

Checks can be mailed and payable to:

San Diego Spine Foundation
6190 Cornerstone Ct.; Ste. 212
San Diego, CA 92121

For Credit Card or Check: Please indicate
either ENDOWMENT or ANNUAL OPERATIONS
in the memo.

