SPRI News

Summer 2013



Alexandra Mastriana-Solal Takes the Steadman Philippon Message to the Top of Kilimanjaro, 19,336 feet. See Patients in the News, Page 6.

INSTITUTE INSIGHT

Record Number of Publications Reflects Steadman Philippon's Success in Competing at the Highest Level of Institutional Research

In 2012, the physicians, scientists, and researchers at the Steadman Philippon Research Institute produced a record number of publications accepted by some of the world's major peer-reviewed journals.

Forty-nine publications appeared in journals such as The American Journal of Sports Medicine, the Journal of Orthopaedic Research, Hand Surgery, the Journal of Bone and Joint Surgery, and the Journal of the American College of Surgeons, among many others, as well as in the National Library of Medicine.

"Winning awards and getting published in major medical journals shows that we are competing at the highest levels," says Dr. Coen Wijdicks, chief of Scientific Operations and director of BioMedical Engineering at SPRI. "Our publications provide credibility among our peers, and the impact of our research affects a worldwide audience."

Chief development officer, John McMurtry, adds, "Peer review and publication of clinical and scientific

(continued on page 2)

INSIDE

- Page 3 SPRI Research Team Honored by International Society of Arthroscopy, Knee Surgery and Orthopaedic Sports Medicine
- Page 4
 Research Update:
 Arthroscopy May Delay Knee
 Replacement by 5-10 Years
- Page 6 Patients in the News: Alexandra Mastriana-Solal Takes SPRI to the Top of Kilimanjaro
- Page 8 SPRI Salutes Lt. Commander Edmund Ganal, M.D.
- Page 10 Brazilian Surgeon Dr. Lourenço Peixoto Completes "Life-Changing" Year
- Page 14 Sports and Wellness: Why do Athletes Believe in PRP Therapy?
- Page 16 SPRI Staff Help Judge Science Fair
- Page 19
 August 15, Vail Valley Medical Center 2013 Steadman Philippon Research Institute Golf Classic, presented by RE/MAX, LLC at Sanctuary, Sedalia, Colo.



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(continued from page 1)

studies certify that the absolute highest standards in the research process have been met. We compare favorably to much larger research institutions such as the University of Pittsburgh Medical Center, the Hospital for Special Surgery in New York, and Rush University Medical Center in Chicago."

SPRI NEWS SUMMER 2013

AWARDS

In addition to 2012 publications, Dr. J. Richard Steadman, SPRI founder and co-chairman, Dr. Robert LaPrade, chief medical officer, and Dr. Wijdicks received awards presented by national and international professional organizations. Dr. Steadman was honored with the Richard O'Connor Research Award for his paper titled "Ten-Year Survivorship Following Knee Arthroscopy in Patients with Moderate to Severe Osteoarthritis of the Knee." The award was presented by the Arthroscopy Association of North America.

Dr. LaPrade received the Achievement Award from the American Academy of Orthopaedic Surgeons for his research on knee ligament reconstruction.

Dr. Wijdicks was named Outstanding Reviewer of the Year by ESSKA, the European Society of Sports Traumatology, Knee Surgery, and Arthroscopy.

Why it is Important to Have a Will

By Lynn Thomas

A will is a document that lets you make clear exactly who you want to receive what assets in what amounts after your passing. Why is that important? If you die without a will, it is left to the state to distribute who gets what based on state law, not your wishes.

How do those laws work? Generally, if you leave a spouse and children, the state splits your assets between the surviving spouse and the children. If you're single with no children, the state will usually distribute your assets among your blood relatives. The state is unable to determine what you actually wanted to be distributed in what amounts or that you might have other friends, family, and cherished causes you wanted to remember.

A will can be useful if you have a trust, as well. Many trusts deal only with certain assets, not necessarily all your assets. And even in the case of a revocable living trust where you can put all your assets in the trust, a will can assist in the distribution of any assets that may not have gotten 'retitled' and placed in the trust. A will is also especially important if you have children and want to transfer guardianship for minors.

It's a good idea to review your will periodically, as circumstances change. Also, include reviewing your beneficiary designations on your 401(k), IRA, pension, and life insurance policies when you do that.

When you are planning or reviewing these documents, we invite you to remember the Steadman Philippon Research Institute in your plans. We thank you for your partnership in helping us make a difference in so many lives even beyond your life. If you have any questions, please contact John McMurtry at 970-479-5781 or mcmurtry@sprivail.org for more information.



Dr. Robert LaPrade

Dr. LaPrade was also awarded the 2013 OREF Clinical Research Award for his paper titled "Improving Outcomes for Posterolateral Knee Injuries." The award is considered the highest research award for orthopaedic surgeons and has been called the "Orthopaedic Nobel Prize."

More Studies

The results of two more SPRI studies were published late in 2012 and early in 2013. Research comparing two methods of anterior cruciate ligament reconstruction appeared in the May 21, 2013, issue of *The American Journal of Sports Medicine.* The full title is "Biomechanical Comparison of Anatomic Single - and Double-Bundle Anterior Cruciate Ligament Reconstructions: An In Vitro Study." The authors included Dr. Robert LaPrade, Dr. Coen Wijdicks, Dr. Lars Engebresten, Mary Goldsmith, Kyle Jansson, and Sean Smith.

"Treatment of a hip capsular injury in a professional soccer player with platelet-rich plasma and bone marrow aspirate contrite therapy" was published in the October 7, 2012, online edition of *Knee Surgery, Sports Traumatology, Arthroscopy.* Platelet-rich plasma is made from the patient's own blood and potentially represents an accessible and inexpensive source of growth factors and healing proteins. The authors were Dr. Marc Philippon, Dr. Robert LaPrade, Dr. Robert Boykin, Dr. Coen Wijdicks, Dr. Erik Giphart, and Kevin Campbell.

SPRI Research Team Honored by ISAKOS for Study on Meniscal Tears and Repairs

A team of SPRI researchers was honored by the International Society of Arthroscopy, Knee Surgery and Orthopaedic Sports Medicine (ISAKOS) for a study that examined the biomechanical consequences of a torn meniscus and a procedure to repair the injury. The research was conducted and funded by the Steadman Philippon Research Institute.

The full title of the study is "Biomechanical Consequences of a Complete Radial Tear Near the Medial Meniscus Posterior Root Attachment Site: In-Situ Pullout Repair Restores Derangement of Joint Mechanics." The findings were presented at a May meeting of the biennial ISAKOS Congress in Toronto.

The Steadman Philippon physicians, scientists, and researchers who collaborated on the study included staff from both Biomedical Engineering and the Center for Outcomes-Based Orthopaedic Research. Specifically, Dr. Jeff Padalecki, Kyle Jansson, Sean Smith, Grant Dornan, Dr. Casey Pierce, Dr. Coen Wijdicks, and Dr. Robert LaPrade.

For his contribution to the research, Dr. Padalecki, a Sports Medicine fellow at SPRI in 2011-2012, was named recipient of the Albert Trillat Young Investigator's Award. The award provides recognition for a young researcher who has conducted outstanding clinical laboratory research contributing to the understanding, care, or prevention of injuries to the knee. The Young Investigator's Award is named in the memory of Professor Albert Trillat, past president and founder of the International Society of the Knee. Professor Trillat was one of the pioneers in knee surgery and sports traumatology.

Karen Briggs to Counsel Congressional Patient-Centered Outcomes Research Institute

Congratulations to Karen Briggs, director of the Center for Outcomes-Based Orthopaedic Research at the Steadman Philippon Research Institute. She was selected to go to Washington, D.C. to review grants for the Patient-Centered Outcomes Research Institute (PCORI). The nonprofit PCORI is authorized by Congress to conduct research to provide information about the best available evidence to help patients



Karen K. Briggs, M.B.A., M.P.H.

(continued on page 16)

RESEARCH UPDATE

Dr. Richard Steadman's Award-Winning Research Shows That Arthroscopy May Delay Knee Replacement by 5-10 Years

By Jim Brown, Executive Editor, SPRI News

A study of patients with knee osteoarthritis (OA) conducted by Dr. Richard Steadman and his colleagues at the Steadman Philippon Research Institute in Vail found that an operation called "The Package" allows many patients to delay total knee replacement (TKR) for up to 10 years.

For his landmark study, titled "Ten-Year Survivorship Following Knee Arthroscopy in Patients with Moderate to Severe Osteoarthritis of the Knee," Dr. Steadman was honored with the Richard O'Connor Research Award. The award was given by the Arthroscopy Association of North America at its annual meeting in 2012. The study was published in the February 2013 issue of *Arthroscopy*. Dr. Steadman's co-authors are Karen Briggs, Lauren Matheny, and Dr. Henry Ellis.

FEW OPTIONS FOR LONG-TERM RELIEF

"Although thousands of people are diagnosed with knee OA every year, there are few options that offer longterm relief," says Ms. Briggs, director of SPRI's Center for Outcomes-Based Orthopaedic Research. "Anti-inflammatory drugs and knee injections offer pain relief, but the reduction is usually shortlived, lasting about six months. Other options include arthroscopy or total knee replacement."

Dr. Steadman has been one of the country's leading advocates of joint preservation, as opposed to joint replacement, throughout his distinguished career.

"Restoring and preserving joints for as long as possible is superior to joint replacement," he explains. "Much of our research has been focused on joint preservation procedures such as microfracture because they are generally less invasive and have better outcomes by allowing patients to resume their previous activity level and regain their full range of motion. This typically cannot be completely duplicated with artificial joints."

THE PACKAGE

Through years of research, Dr. Steadman developed a procedure called "The Package," which is actually a series of arthroscopic procedures performed during a single operation to treat pre-arthritic and arthritic patients and to preserve joints. The Package is for patients who want to remain more active than a TKR would allow.

"The protocol we use at the Steadman Clinic is designed to address the pain generators in the knee," says Dr. Steadman. "Nonsurgical treatment is the first step in management. This includes things like activity modification, physical therapy, oral anti-inflammatory drugs, and injectables such as steroids and viscosupplementation. Bracing is also considered in some patients."

"If nonsurgical management fails, arthroscopic surgery is the next step. In our experience, painful symptoms decrease about 70 percent of the time if arthroscopic surgery is used and followed by rehabilitation to maintain the gains obtained during surgery." Instead of arthroscopy surgery, some people choose TKR, which according to Briggs, has been (until now) a predictable and reasonable surgical treatment for "end-stage" OA.

"However," she says, "this option may not be ideal for younger, active patients. Only 20 percent of TKR patients return to higher impact sports. In fact, a survey of orthopaedic surgeons recommended against activities such as racquetball, climbing, soccer, tennis, basketball, and jogging after TKR. Low impact exercises (walking, bicycling, swimming) are recommended instead."

A DECADE OF DATA

Several studies have reported shortand medium-term benefits of knee arthroscopy, but there has been a conspicuous lack of long-term data. Dr. Steadman and his research team recognized this problem and, more than a decade ago, began accumulating data on 73 carefully selected patients who were referred to the Steadman Clinic because of their age and activity level, and who were thought to be candidates for TKR.

The purpose of the study was to evaluate the long-term outcomes of end-stage OA treated with a comprehensive knee arthroscopic package (The Package). They hypothesized that most patients with moderate and severe OA would likely have had TKR within 10 years. After gathering a decade's worth of data, they found out something else.

THE RESULTS

The 69 people who were selected for the study and who responded to periodic questionnaires throughout the entire 10 years of research ranged in age from 37-78 (average age, 57). At least one other physician had recommended TKR. "Survivorship" was defined as not having undergone TKR during the decade since their arthroscopic surgery at the Steadman Clinic.

The findings showed that 60 percent of patients were able to delay knee replacement for five years; 47 percent for seven years, and 40 percent for 10 years. The average length of time before TKR was 6.8 years, and 13 patients showed good survivorship 10 years after the arthroscopic procedure. Overall, the participants reported a high level of satisfaction following arthroscopy.

"Avoiding TKR for five to 10 years is desirable in order to retain a significant activity level," says Briggs. "In our study, younger patients and patients with moderate OA at the time of arthroscopy were more likely to delay replacement for a longer period of time when compared to older patients or patients with severe OA."



hoto: John Kell

Dr. Richard Steadman

HELPING PEOPLE REMAIN ACTIVE

"Knee arthroscopy is an effective procedure for severe degenerative joint disease, and there was no reason to do arthroscopic surgery in these patients," says Dr. Steadman. "You just have to do the right thing. The point is that you can do things arthroscopically in these end-stage knees. You want to take care of the degenerative changes. When joint surface contact pressures are decreased and the joint spaces are kept open, pain is relieved. Basically, we want to help people remain active and delay a joint replacement with this procedure."

Dr. Steadman emphasizes the importance of rehabilitation and says the goals are to maintain joint volume and to prevent scar tissue from reforming, while preserving joint mobility. Most of the exercises are designed to increase range of motion.

"Regaining strength is a second goal," he says. "The rehabilitation program does not include exercises that elicit pain, and postoperative exercises are specifically tailored to each patient."

PRACTICAL IMPLICATIONS

The Centers for Disease Control conservatively estimates that OA

(continued on page 6)

(continued from page 5)

affects 27 million adults over the age of 25 and 70 percent of those 65 and over. Of those, 16 percent will develop OA in one or both knees. It is more common in women than in men. Untreated, knee OA progresses at an estimated 4 percent a year.

As mentioned earlier, non-invasive measures are the first line of defense against knee OA. If those measures don't work, the next step for moderate or severe knee arthritis does not automatically have to be TKR. Dr. Steadman's study clearly shows that arthroscopy is a viable option for many patients before TKR becomes the last resort.

He and his colleagues at the Steadman Clinic and the Steadman Philippon Research Institute emphasize that the arthroscopic procedures analyzed in this study are not a cure for knee arthritis. However, they represent a treatment that relieves symptoms, improves function, and delays TKR.

PATIENTS IN THE NEWS

Alexandra Mastriana-Solal Takes the Steadman Philippon Message to the Top of Kilimanjaro

By Jim Brown, Executive Editor, SPRI News

It wasn't your usual telephone call, but then the caller wasn't your usual person. Anyone with a movie marquee name like Alexandra Mastriana-Solal must have a story to tell, and she does.

THE CALLER

Alexandra Mastriana-Solal was born and raised in Paris. She came to the United States for her college education, received a B.A. from Tufts University, earned a M.A. in marketing at Emerson College, and later graduated from the University of Miami with a M.B.A. in international business. She's had more than 20 years of experience in the real estate industry and has worked for firms such as The Mills Corporation, The Rouse Company, and Arquitectonia, an international architecture, landscape, and design firm. She is now associated with Minola Realty in Fort Lauderdale, Florida. Alexandra also has a bad right knee, or at least it was bad before she met Dr. Richard Steadman.

THE INJURY

Alexandra injured her knee skiing in the French Alps when she was only 16 years old. "I missed a bump, heard something unusual in my knee, and knew that something was wrong. The doctor who examined me there told me I was a 'crybaby,' and I raced the next day."

"I went back to Paris, where I was involved in modern dance, and the knee got worse and worse. I needed surgery and the surgeon removed the meniscus. He apparently did not notice a torn anterior cruciate ligament (ACL)."

Alexandra went off to college in the states, but had to take a room on the first floor of a dorm because she couldn't make it up and down stairs. After more pain and another surgery, she was told she might not be able to walk again without crutches, but a friend of her father arranged for her to see Dr. Steadman, then in Lake Tahoe.

"I don't know exactly what he did," says Alexandra. "I just asked him to fix it." He did, her rehab program lasted two full years, and there have been a few follow-up arthroscopic procedures since.

"Dr. Steadman and his wife, Gay, have always been extremely nice to me and they know my entire family," says Alexandra. "My sister and husband have also had surgeries with him."

Now, more than 25 years since her first operation with Dr. Steadman, Alexandra's "normal" training routine includes running between three and six miles, three or four times a week. She also bikes, swims, and skis. She does weight training and has added Stair Master work twice a week—wearing training boots.

THE CALL

On February 5, 2013, Alexandra called SPRI's chief development officer, John McMurtry, in Vail. "John, I am calling to ask if I could borrow a Steadman Philippon Research Institute flag or banner I could take with me for a photo on the top of Mount Kilimanjaro."

(Kilimanjaro is in Tanzania and is not only the tallest peak on the African continent, but also the tallest free-standing mountain in the world. It has an altitude of 19,336 feet (3.6 miles). It is a 45-mile trek to get to the summit and takes eight days to ascend, two to return. Every year 15,000 attempt to reach Uhuru Peak, the summit. Half of them don't make it.)

"The reason I am doing this is because I'm raising money for the Steadman Philippon Research Institute. I feel like I owe it to Dr. Steadman. I have asked my friends for donations," she told John, "and so far, I've raised more than \$10,000, which I will match. I would like to send a picture of me with the flag on top of Mount Kilimanjaro to my friends, who have generously given on my behalf."

THE APPEAL (TO HER SUPPORTERS)

"I AM WRITING TODAY TO ASK FOR YOUR HELP IN RAISING MONEY FOR A CAUSE THAT IS DEAR TO ME. MOST OF YOU KNOW ABOUT MY LIFELONG STRUGGLES WITH MY RIGHT KNEE. SOME OF YOU MIGHT EVEN REMEMBER SEEING ME STRUGGLE TO WALK (WITHOUT CRUTCHES) FOR YEARS."

"TODAY, THAT STRUGGLE IS MERELY A BAD MEMORY. I OWE MY RECOVERY TO A MAN I ADMIRE—DR. RICHARD STEADMAN. HE HAS HELPED ME ACHIEVE THE PHYSICAL GOALS I HAVE SET FOR MYSELF. I HAVE RUN FOUR HALF-MARATHONS, COM-PETED IN A HALF-IRONMAN EVENT, AND IN FEBRUARY I WILL PURSUE A DREAM I HAVE HAD FOR MANY YEARS. I AM PLANNING TO TREK THE HIGHEST PEAK IN AFRICA—MOUNT KILIMANJARO."

"The Steadman Philippon Research Institute's mission is to keep people of all ages physically active. The Institute makes this possible through orthopaedic research and education in the areas of arthritis, healing, rehabilitation, and injury prevention."

"WITHOUT THAT TYPE OF RESEARCH, I WOULD NOT LEAD A PAIN-FREE LIFE, AND I CERTAINLY WOULDN'T BE THINKING ABOUT HIKING



UP A MOUNTAIN FOR **10** DAYS. KNOWING THAT WE ALL NEED HIPS AND KNEES FOR THE REST OF OUR LIVES, WHETHER WE ARE WORLD-RENOWNED ATHLETES, WEEKEND WARRIORS, OR JUST REGULAR FOLKS, THIS RESEARCH IS REALLY IMPORTANT. " Alexandra Mastriana-Solal at the summit of Kilimanjaro, 19,336 feet.

THE FLAG

John McMurtry doesn't keep a box of SPRI flags in his office. Until Alexandra called, there were no SPRI flags. But John quickly recognizes a unique person, a compelling story, and an opportunity to spread the SPRI message around the world. Alexandra and her new, one-ofa-kind SPRI flag left for Tanzania on February 19.

SHE DID IT

Alexandra officially arrived at the top of Kilimanjaro at 12:10 pm on March 2, 2013. "The trip was amazing—much more than I expected," she said. "No one was there besides us. A snowstorm was brewing. It was beautiful, cold, and windy. From the first peak to the last, you have a magnificent view of many glaciers. I was extremely happy, but didn't really feel the accomplishment until I was at camp that night.

(continued on page 8)

(continued from page 7)

I called my husband and parents from a satellite phone. Reaching the peak was exhilarating."

Reflecting on the experience, Alexandra says, "Staying active is what it's all about. Even when you have a bad day of physical therapy, you have to concentrate on the next adventure, the next physical challenge."

What might that challenge be? "I'd like to hike up Machu Picchu with my son."

If she does, we'll let you know. Her SPRI flag might be on its way to South America.

Steadman Philippon Research Institute Salutes Lt. Commander Edmund Ganal, M.D.

By Jim Brown, Executive Editor, SPRI News

Lieutenant Commander Edmund A. Ganal, M.D., United States Navy, is the latest in a distinguished line of military officers and orthopaedic surgeons who have completed the Steadman Philippon Research Institute Sports Medicine Fellowship Program.

Dr. Ganal, a veteran of military operations in both Iraq and Afghanistan, began his 12-month fellowship in August of 2012 and will complete his SPRI training in July 2013. He will continue his military service as an orthopaedic surgeon specializing in sports medicine based at Naval Station Newport (RI). He and his colleagues will provide medical services for every Naval installation in New England.

"The connection between sports medicine and injuries sustained during military service are very similar," says Dr. Ganal. "At Newport, about 90 percent of the injuries and conditions we will treat are sports medicine in nature, although they happen with people in military service." Dr. Ganal graduated magna cum laude from the University of California, San Diego, with a degree in biochemistry and cell biology. He was a member of Phi Beta Kappa, played two years of NCAA soccer, and began to think about a career in medicine. He volunteered for a medical mission to the Philippines (assisting his father, who is a general surgeon) before attending Tufts University School of Medicine through the Health Professions Scholarship Program.

SERVICE IN IRAQ, AFGHANISTAN

Dr. Ganal has served with the 1st Marine Division at Camp Pendleton, at the Naval Medical Center in San Diego, and at the Naval Station in Newport. He deployed to Iraq in support of Operation Iraqi Freedom and later to Afghanistan for Operation Enduring Freedom. In Iraq, Dr. Ganal was the general medical officer for an infantry combat unit of 2,000 soldiers.

"In Afghanistan," he recounts, "I was in a forward surgical unit, as well as a main hospital. A general surgeon, an anesthesiologist, and I operated out of a tent, trying to stabilize combat casualties before getting patients off to the next level of care. You don't really see what the military is all about until you do an actual operational tour. The lesson that I took away from those experiences was an appreciation of what infantry soldiers accomplish and what they have to endure while they serve their country."

MEET DR. CLAIRE GANAL

The person most responsible for Dr. Ganal's success, according to Dr. Ganal himself, is his wife, Claire. "We met in medical school, got married shortly thereafter, and I transferred from the Air Force to the Navy so we could be stationed in the same locations," says Dr. Ganal.

Dr. Claire Ganal is a former officer in the Navy, a practicing pediatrician, and mother of Sofia, Christopher, and Brendan Ganal. When Brendan was born, Lt. Commander Ganal was in Afghanistan and his wife was back in Newport. It was a "FaceTime delivery," according to the Ganals. The Internet connection between the U.S. and Afghanistan was unreliable, but they did their best to maintain daily contact, especially during Dr. Claire Ganal's pregnancy. About a half-hour before she delivered, the couple connected via iPad's FaceTime, and Lt. Commander Ganal was able to be with his wife, at least electronically, for the birth of their son. He saw Brendan in person for the first time three months later.

THE STEADMAN PHILIPPON FELLOWSHIP EXPERIENCE

Dr. Ganal knew about the reputation of the Steadman Clinic and the Steadman Philippon Research Institute, but he didn't consider applying for the SPRI Fellowship until the chief resident (a former SPRI fellow) at San Diego Naval Medical Center suggested it. During the following months, Dr. Ganal met Scientific Advisory Committee member Dr. John Feagan, as well as Dr. Steadman, Dr. Philippon, and other SPRI physicians at a conference in Vail. He applied, was accepted, and soon began his fellowship program.

"The Steadman Philippon Research Institute has world-class surgeons, scientists, and staff members, as well as world-class facilities," says Dr. Ganal. "There are few, if any, fellowship programs that offer a complete package of clinical training, high-level research, and educational opportunities. We get all the support we need during our year at SPRI."

The focus of Dr. Ganal's research at SPRI, working with Dr. Millett, Dr. Ho, and others, has involved MRI mapping of the rotator cuff and injuries to structures that make up the cuff. Their research, which is scheduled for completion this summer, may soon help surgeons around the world better diagnose and treat shoulder injuries.

For the next three years, Dr. Ganal's primary focus will be on clinical treatment of sports injuries, but he also hopes be able to follow his patients' outcomes



over longer periods of time using the model that SPRI has developed to build its massive patient database.

Dr. Ganal, the pediatrician, will be a stay-at-home mother/part-time pediatrician until the children are all in school. In addition, she is currently getting a master's degree in medical education through Cincinnati Children's Hospital. Dr. Edmund Ganal and Dr. Claire Ganal are great examples of America's military officers, health professionals, and parents. It has been an honor to have them as part of the Steadman Philippon Research Institute's family for the past year. We salute them and expect even greater things from them in the future.

Dr. Ganal scrubbing into a surgery in a Forward Resuscitative Surgery System operating tent - May 2011. Despite the austere conditions, he was able to rapidly perform damage control surgery on several combat casualties.

EDUCATION

Award-Winning Brazilian Surgeon Dr. Lourenço Peixoto Completes "Life-Changing" Year at Steadman Philippon

By Jim Brown, Executive Editor, SPRI News

He is a young professional, married, and the father of a two-year-old son. He has a great job and an exciting future. He likes hamburgers, is a Denver Broncos fan, and stays in shape by surfing, skiing, and working out in a gym. Is this another American success story? No, it's another Brazilian success story with an American twist.

Dr. Lourenço Peixoto, M.D., is an award-winning orthopaedic surgeon from Brazil who recently completed a year of advanced training as a visiting scholar at the Steadman Philippon Research Institute. Six years into his career, the Rio de Janeiro resident is



highly trained, internationally published, and one of Brazil's rising medical stars.

Being a rising star is common in the Peixoto family. His wife, Andrea, is a cardiologist. An older brother and sister are both anesthesiologists, and his younger brother is an attorney.

Dr. Peixoto is the latest in a line of orthopaedic surgeons who have come to SPRI as visiting scholars. The Brazilian Visiting Scholar Program is sponsored by businessman and banker Jorge Paulo Lemann. The physician-scholars work with SPRI surgeons and scientists to learn new surgical techniques, observe clinical practices, attend professional meetings, conduct research, and submit the results of their research to professional journals.

Dr. Peixoto was chosen from a field of approximately 30 applicants in Brazil for the Visiting Scholar award. It was not the first time he has received special recognition. In 2011, he won the Jorge Paulo Lemann Award for Hip Arthroscopy Research, and in 2012 he was awarded the Dr. Luiz Resende Puech Award for the best clinical research paper at the 44th Brazilian National Congress in Salvador, Bahia, Brazil. His co-authors included SPRI's Dr. Marc Philippon and Karen Briggs, director of the Center for Outcomes-Based Orthopaedic Research, along with Dr. Peter Goljan and Dr. Brian Devitt.

UNEXPECTED HONOR, DIFFICULT DECISION

"The Visiting Scholar award was a great and unexpected honor, but the decision to accept it was difficult," says Dr. Peixoto. "I had to leave my wife and our 1 ½-year-old son, but my wife was totally supportive of this opportunity. After leaving Brazil, I talked with my family almost every day. Skype saved my life."

Being away from his family was not his only adjustment. He had never seen snow, but while in Vail he learned to ski. He became a member of the active community of Vail by riding a bicycle to work (16 miles round trip), skiing, and exercising at a gym.

In 2012, Dr. Peixoto was awarded the Dr. Luiz Resende Puech Award for the best clinical research paper at the 44th Brazilian National Congress in Salvador, Bahia, Brazil. His co-authors include Dr. Marc Philippon and Karen Briggs, director of the Center for Outcomes-Based Orthopaedic Research, along with Dr. Peter Goljan and Dr. Brian Devitt. Dr. Peixoto, (r) receives the award from Dr. Geraldo Motta, the President of the Brazilian Society of Orthopedic Surgery.

His friends told him he would gain weight in the U.S., but he did just the opposite. Self-described as being overweight when he arrived, Dr. Peixoto lost 22 pounds during his stay. "I am happy, healthy, and skinny," he says.

Dr. Peixoto became interested in medicine as a teenager and decided to specialize in orthopaedic surgery and hip arthroscopy while in medical school. "I had more rotations in the hip group than in other disciplines during my residency. The more I learned about it, the more I liked it and the more I became comfortable with hip replacement and hip arthroscopy."

During his 12 months at Steadman Philippon, he spent an average of three days a week reading, researching, and writing papers, as well as attending meetings. "The most exciting part of my week was being in the operating room with Dr. Philippon," says Dr. Peixoto. "He is a very good teacher and surgeon. It was not unusual to have visitors from all over the world observing his procedures."

Dr. Peixoto also spent at least one day a week in clinical practice, helping with physical exams, measuring movements, and interacting with patients. "The Steadman Clinic and SPRI have friendly and easy-going work environments, but everyone is always busy, hard-working, and outcomes-oriented. Visiting scholars are not here for a vacation. We can have a great time, but the doctors here and our sponsors back in Brazil want us to work hard and produce good results."

ONE YEAR CHANGED MY LIFE

"I'm a much better physician now than I was a year ago," observes Dr. Peixoto. "Just one year has changed my life, and I'm not the only one. I see others who come to Vail as young doctors and leave as experienced practitioners and researchers. Of all the things I have learned here, I think improved surgical skills are the most important."

Dr. Peixoto is now back in Brazil and beginning a practice at Hospitalys, a new orthopaedic center built and managed by Amil Par, the largest managed healthcare organization in Brazil, in partnership with the Hospital for Special Surgery in New York. He will be the hospital's hip arthroscopy surgeon.

Dr. Peixoto's goals are ambitious. "I want to publish papers, hold an important position in the Brazilian Hip Society, and have visibility in the international medical community."

Based on his accomplishments so far, we can expect Dr. Peixoto to exceed those goals and to share the knowledge he gained at Steadman Philippon with the rest of the world.

One other prediction: Even though at home in Brazil, he'll be almost 5,000 miles from Colorado but still a lifelong Denver Broncos fan.

University of Wisconsin Medical Students Complete BioMedical Research Assistantship Program at SPRI

Kevin Campbell and Max Michalski spend a year in research, now set to earn their degrees in medicine.

By Jim Brown, Executive Editor, SPRI News

Kevin Campbell and Max Michalski, both natives of Wisconsin, graduates of the University of Wisconsin, and fourth-year medical students at Wisconsin's School of Medicine and Public Health, now have one more thing in common. They recently completed a one-year term as BioMedical research assistants at the Steadman Philippon Research Institute.

The assistantships offer medical students an opportunity to work with the physicians and scientists at SPRI on a variety of biomedical research projects.

(continued on page 12)



Max (left) and Kevin (right) enjoying a hike up Vail Mountain. (continued from page 11)

Among their responsibilities are collaborating with the BioMedical Engineering staff to design research methods and operating procedures, as well as to perform and oversee data collection, database development, and analysis of studies. They are also expected to submit, present, and publish scientific work.

KEVIN CAMPBELL

Kevin and Max both had parents who encouraged them to aim high and pursue careers in medicine. Kevin's father (Greg), grandfather, and greatgrandfather were all pharmacists, and his mother, Therese, is a business manager. Kevin's sister, Alyssa, recently graduated from New York University's School of Law.

"My father had an accident about five years ago and his leg was broken," says Kevin. "The orthopaedic surgeon who treated him and worked with my family was very compassionate and able to do something with my dad that no one else could have done. The care he provided was the kind I want to provide for other families."

"I didn't originally plan to take off a year between my third and fourth years in med school to focus on research," he says, "but the assistantship was the impetus to move forward. This program prepares you very well for an orthopaedic residency and helps develop skills you will ultimately use for the rest of your career. The doctors here do a good job of providing surgical care for their patients, but they are also researchers. That's the kind of combination I would like in my future career."

"What makes orthopaedic surgery different from other specialties is the patient, especially those who are athletes or who are physically active," says Kevin, who was a swimmer, football player, and track and field athlete in high school (he's also been a national-level competitor in sailing). "They are really motivated and involved in their recovery, and it's rewarding to provide care for that kind of patient population."

"When I first walked into SPRI, I thought I was in heaven," recalls Kevin. "Vail is a pretty place, the people were nice, and the Institute presented endless opportunities for researchers and surgeons."

Much of Kevin's research dealt with the anatomy of the ankle and with hip disease. "The practical value of the ankle anatomy research," says Kevin, "is to give surgeons a better idea of how to do ankle repairs. The hip studies show the importance of repairing the labrum (the rim around the hip joint) in patients with hip injuries or disease and validate Dr. Marc Philippon's surgical procedures."

MAX MICHALSKI

Phill and Carol Michalski were just as influential in guiding their son toward a rewarding career. "My father received his undergraduate and master's degrees in mechanical engineering. My mom was a volleyball and basketball player at Wisconsin, so I played sports from the time I was a kid (football and basketball in high school; a skier now). She was also a math teacher in high school, and I was pretty good in math and science. She recognized my engineering potential, but she also knew I wanted to go into medicine and suggested the biomedicine option." "Once I started researching the assistantship position," says Michalski, "I was really impressed with the advanced research being conducted at Steadman Philippon. Everyone at Wisconsin had great things to say about the Clinic and the Research Institute. It was a chance to work with surgeons and others who are well-known throughout the orthopaedic community."

When they started their work at SPRI, Max and Kevin were quickly immersed in multiple research projects. "The learning curve was pretty steep, but I was happy to get this opportunity," says Max, who has an undergraduate degree in biomedical engineering and a master's degree in biomechanical engineering, both from Wisconsin. "One of the challenges was managing the sheer number of ongoing research projects. It taught both of us how to set priorities and stay focused. After a while, all of the hours in the lab became second nature."

"The lab here is like nothing else on earth," he says. "It is really unique and gives you all the tools you need to conduct state-of-the-art research. There are not only physicians and scientists, but also engineers, statisticians, medical illustrators, audio-visual experts, and others who support the research. The staff is really what makes SPRI run."

One of Max's research projects at SPRI involves the hip and providing surgeons with quantitative data regarding the anatomy of the hip, acetabulum (the cup-shaped cavity at the base of the hip bone), and femur (the bone that extends from the pelvis to the knee).

"We are building on the work that Dr. Robert LaPrade has done on the knees and applying that knowledge to the hip. It will become a resource for surgeons to know precisely where everything should be when doing surgery."

LOOKING AHEAD

"At Steadman Philippon, you get to see basic research, surgical medicine, and treatment outcomes," says Kevin. "The most important message I am taking away from this experience is how those



SPRI Labs

Photo: John Kelly

three facets of orthopaedic surgery are related to each other."

For Max, the reward was the overall amount of knowledge he gained. "I still have a lot to learn, but this year has given me an amazing advantage. I've spent time in the labs, in the operating room, and in meetings with some of the best minds in the medical world. I learned from talking with them, watching them work, and trying to understand the way they think."

Kevin and Max will return to the University of Wisconsin during the next academic year to complete their studies and then move on to their residencies in orthopaedic surgery.

AFTER THAT?

"It would be nice to return to Steadman Philippon or another research institute to complete a fellowship," says Kevin.

"The sports medicine fellowship here is the best in the country," adds Max. "Coming back would be a dream."

SPORTS AND WELLNESS

Why do High Level Athletes Believe in the Benefit of PRP Therapy?

Dr. Robert LaPrade Comments on the use of Biologic Treatments for Sports Injuries

edical research in the area of PRP (platelet-rich plasma) therapy is continuing to gain notoriety in the mainstream press, particularly because high profile athletes are taking notice of the benefits of this treatment alternative. Kobe Bryant and Alex Rodriguez are among those who have traveled to Germany where biologic treatments in the form of PRP are readily available. Scientists in the U.S. and at the Steadman Philippon Research Institute in Vail agree that PRP treatment offers faster healing for sports injuries because the patient's own tissues are used to treat the injured cartilage, muscle, or tendon.

While research scientists and orthopaedic surgeons at SPRI agree that the therapy does have a promising future, they believe it needs additional analysis and that there is much still left to be discovered.

Dr. Robert F. LaPrade, chief medical research officer at SPRI and partner at the Steadman Clinic specializing in complex knee injuries, participated in the International PRP/Biologic Treatment Symposium in Vail. According to Dr. LaPrade, "Biological treatments to treat cartilage, muscle, and tendon injuries from sports injuries or aging have been recognized as one of the up-and-coming frontiers of sports medicine."

He adds, "However, it is well-recognized that the science behind these treatments has not been rigorously followed. A well-defined scientific basis for determining the efficacy of these treatments should be determined prior to widespread use of any enhanced blood product, stem cell treatment, or biological factor enhancement to validate their use in patients. While it appears that many of these products have few known side-effects, their usefulness should be verified to justify their cost, which is often borne by patients because insurance companies do not necessarily pay for these treatments."

Dr. LaPrade continued to discuss biologic treatments and PRP therapy by explaining that it is strongly believed that growth factors can and will be manipulated in the near future to enhance healing of sports injuries and to counteract the effects of aging and tissue damage from injury or overuse. However, there are potentially hundreds of individual growth factors within the alpha granules in platelets alone, and only a small percentage of these have been studied in detail.

In addition, while PRP has been used in many centers to treat injuries, the ideal platelet concentrations and the ratios of platelets to white blood cells have not been defined. In fact, there are over a dozen different commercial devices for obtaining PRP with a great variation of platelet concentrations and platelet to white blood cell ratios. In effect, this means that no one is even sure if the PRP they are obtaining is efficacious and has the correct ratios of growth factors. Also, one should use either ultrasound or x-rays to verify the PRP is being delivered into the exact area of the joint, muscle, or tendon where the treatment is indicated.

While it is accurate that many randomized controlled studies have not found any difference between the use of PRP and placebo, this may be because most of these studies did not have specific age ranges, defined methods to evaluate objectively the effects of the PRP on healing tissues, and the fact that the ideal concentration of platelet concentrations and ratios has not been defined. Thus, the jury is still out as to whether PRP injections work and when they should be utilized.



hoto: John Kelly

Dr. Robert LaPrade

In the United States, the FDA regulates the manipulation of a person's blood and stem cell products. Current regulations only allow for "minimally manipulated" products. This has been generally interpreted to mean that one can centrifuge down blood and obtain PRP or harvest stem cells within the confines of a reasonable time frame in the operating room or clinic, but to manipulate it past that point has not been approved. Thus, current research strategies are attempting to focus on harvesting a person's own stem cells (adult progenitor cells) that have been demonstrated to be present in bone marrow, fat (adipose) tissues, muscle, and skin, and to isolate and inject these cells with minimal manipulation or expansion in tissue cultures before reinjection into the patient.

The manipulation of a person's blood is believed to activate the natural antiinflammatory interleukin-1 receptor antagonist (IRAP). This product has proven promising in veterinary medicine, where it has been injected into joints and has been reported to decrease swelling and possibly slow down the progression of osteoarthritis. Interleukin-1 is a natural biologic factor (a cytokine), which has been demonstrated to cause inflammation; thus, the use of an inhibitor that prevents interleukin-1 signaling, such as IRAP, should reduce inflammation. The therapeutic uses of IRAP in humans are primarily to treat the more devastating effects of rheumatoid arthritis. There have been insufficient human clinical studies to determine if this particular growth factor manipulation is beneficial for the treatment of osteoarthritis compared with current osteoarthritis treatment methods or even placebo.

Dr. LaPrade adds, "We are currently on the frontier of the use of biologic treatments in sports medicine. Both the use and manipulation of one's own growth factors will become mainstream medicine in the near future. In addition, the use of stem cells for regeneration of tendon, ligament, muscle, and cartilage injuries will be possible. However, it is important that we not put the cart before the horse. We should require good scientific evidence of the efficacy of these treatments before they are widely utilized in patients."

SPRI NEWS SUMMER 2013

(Steadman Philippon Update, continued from page 3)

and their health care providers make more informed decisions. PCORI's research gives patients a better understanding of the prevention, treatment, and care options available, and the science that supports those options.

The 2010 Patient Protection and Affordable Care Act authorized the creation of PCORI to respond to a widespread concern that, in many cases, patients and their health care providers, families, and caregivers do not have the information they need to make choices aligned with their desired health outcomes.

United States Ski and Snowboard Association (USSA) Honors Steadman Clinic physician Dr. Hackett with the 2013 J. Leland Sosman Award

Presented in recognition of service to the USSA's Physician Pool

The J. Leland Sosman award is given to an exceptional member of the medical support team who has provided outstanding medical coverage and service to USSA, the national governing body for snow sports. Dr. Tom Hackett has been a valuable and dependable member of the USSA Physician Pool as both a head team physician for U.S. Snowboarding and a member of the Medical Committee for



10 years. He was named to three different Olympic Winter Games and has played an integral role in planning for the upcoming Games in Sochi, Russia.

According to USSA CEO Bill Marolt, "Dr. Hackett's dedication and contributions to the athletes in all USSA sports, both on the road and in his practice in Vail, are commendable. He showed time and time again his willingness to go the extra mile to give athletes truly world-class healthcare. USSA is indebted to have such an exceptional physician as a member of our medical staff."

Dr. Steadman was recognized in 2008 with the J. Leland Sosman Award.

When Being Wrong is Right

Science fair challenges students' assumptions

Staff and interns from Steadman Philippon Research Institute help judge the science fair

Reprinted by Permission Randy Wyrick, *Vail Daily*, Vail, Colorado

Sometimes being wrong takes you to the right answer, as Vail Mountain School students learned in their annual science fair. Earlier in the year, Vail Mountain School held its annual science fair. Prior to the competition, local Vail Valley students had the opportunity to consult with research scientists from the Steadman Philippon Research Institute to discuss ways to refine their experiments to yield the most meaningful data.

Science fairs across the country are meant to be a learning experience for students and provide creative ways for them to think through their experiments.

Students at Vail Mountain School, with the help of real researchers, learned that while getting to the answer is good, actually working through the scientific method is even better. SPRI is known worldwide for the research and development of new procedures and techniques in the advancement of orthopedic medicine. Students from the seventh and eighth grade worked through the advice of SPRI researchers to plan, analyze, rethink, and then make sense of their findings.

Dr. Tom Hackett



Mary Goldsmith, M.Sc., senior robotics engineer at SPRI, demonstrates the scientific method to young students who visited the SPRI labs during an earlier visit. There's a process — the scientific method — and students practice working through it.

"Science is messy," said Jaymee Squires of Walking Mountains Science Center. Squires was one of the guest judges of this year's Vail Mountain School science fair. Getting to the answer is good. Working through the scientific method is better. Students plan, analyze, and rethink their work, and then make sense of their findings.

Along the way students learn stuff, sometimes that their original idea — their hypothesis — might not be supported by actual facts, even though they seemed like a good idea at the time. They're like tattoos and most political affiliations that way.

"The process helps students gain confidence for working with real-life situations where there really is no right answer," Squires said. "There's a process the scientific method — and students practice working through it." They solve their own problems along the way, instead of a teacher leading them through it. "Having survived these challenges leaves students feeling empowered and confident in their ability to really do science," Squires said.

The scientific method has not changed, but the questions have. Students tapped experts at the Steadman Philippon Research Institute, who provided advice and feedback about experiments. "Having world-class research scientists as a sounding board really gives students a sense of validation and pride," said Gabe Scherzer, a Vail Mountain School science teacher.

Staff and interns from the Steadman Philippon Research Institute helped judge the science fair, as did other experts from Walking Mountains Science Center, Eagle River Watershed Council, the U.S. Forest Service, and the Vail Recreation District.



FREQUENTLY ASKED QUESTIONS

WHAT NEW RESEARCH INITIATIVES ARE UNDERWAY AT SPRI?

As our Institute looks forward to 2013 and its 25th year of keeping people active, we want friends and supporters to know about plans for a significant project.

A new basic science study will determine the beneficial effects of platelet rich plasma (PRP) therapy in accelerating healing of musculoskeletal injuries (see Sports and Wellness, page 14). This research would lend credence to the beneficial effects of PRP, and clinicians would have a basis on which to move forward with its use.

In the last decade, PRP has been promoted as the "miracle cure" for a

myriad of musculoskeletal injuries. The philosophy of using PRP is based on autologous growth factors that exist in this concentrated mix of platelets harvested from the patient's own blood, which is believed to be capable of stimulating healing in damaged ligaments.

PRP is easily produced by drawing a patient's blood, and is simply prepared and injected. The platelet concentrate supplies important growth factors. The ease of its use and relative affordability make its administration very practical. If the basic science study shows enhanced healing, this would lend credence to the beneficial effects of PRP and clinicians would have a basis on which to move forward with its use in accelerating healing of ligaments.

Steadman Philippon Golf Tournament

The Vail Valley Medical Center 2013 Steadman Philippon Research Institute Golf Classic Presented by RE/MAX International Set for August 15, 2013

Proceeds will support the orthopaedic research and educational programs of the Steadman Philippon Research Institute.

The team event held at Sanctuary Golf Course in Sedalia, Colorado, just south of Denver, will include a shotgun start with a modified scramble. The tournament is open to the public. Sanctuary organizes and hosts charitable events to support organizations devoted to the arts, children, health care, and crisis management.

Since 2004, the Institute has raised

more than \$1.2 million from this golf tournament to support its research programs. Renowned course architect Jim Engh, Golf Digest's first-ever "Architect of the Year," designed the course that protects a private oasis of 220 acres, effectively complementing the 40,000 surrounding acres of dedicated open space.

The Steadman Philippon Research Institute is grateful to Dave and Gail Liniger, owners and co-founders of RE/MAX International, who built this course and created this unique fundraising opportunity for the Institute to develop and enhance relationships with those who support our mission.

Sponsorship opportunities and team slots are available now. More information can be obtained by visiting our website (www.sprivail.org) under "Upcoming Events," or by calling the Development office at 970-479-5781. To request an invitation or for more information on other upcoming events, please contact John McMurtry at the Steadman Philippon Research Institute, 970-479-5781.





181 West Meadow Drive Suite 1000 Vail. Colorado 81657 970-479-9797 970-479-9753 FAX http://www.sprivail.org

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Steadman Philippon Research Institute is a tax-exempt 501 (c) (3) charitable organization dedicated to keeping people active.

The Steadman Philippon Research Institute is dedicated to keeping people of all ages physically active through orthopaedic research and education in the areas of arthritis, healing, rehabilitation, and injury prevention.

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Mark Your Calendar:

AUGUST 15, 2013

Vail Valley Medical Center 2013 Steadman Philippon Research Institute Golf Classic, presented by RE/MAX, LLC at Sanctuary, Sedalia, Colo. For more information, contact John McMurtry at 970-479-5781 or mcmurtry@sprivail.org.

Executive Editor:

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SPRI has a Facebook page! Search for "Steadman Philippon" on Facebook and click "like" on our page. Watch our wall for updates on our research as well as lecture series, orthopaedics in the news and more!

Your Legacy, Our Future. Please remember Steadman Philippon Research Institute in your will, trust, or other estate plan.