MISSION

The 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.

HISTORY

Founded in 1988 by orthopaedic surgeon Dr. J. Richard Steadman, the Steadman Philippon Research Institute is an independent, tax-exempt (IRS code 501(c)(3)) charitable organization employing scientists, researchers, fellows, visiting scholars, and interns. Dr. Steadman moved to Vail in 1990 with one researcher. Today, there are almost 30 employees (scientists, researchers, medical fellows, visiting scholars, administration, and interns). In 2010, Dr. Marc Philippon's name was added to mark the succession of the Institute and recognize his research efforts and contributions to the field of hip arthroscopy.

Funding for research and education programs comes primarily from public donations and fundraising events (grateful patients and the physicians of the Steadman Clinic), corporations, and competitive grants.

The Institute wishes to express again deep appreciation to John P. Kelly, who donated many of the stock photos in this year’s Annual Report and contributed his time to photograph the many Institute and operating room subjects.

John Kelly first picked up a camera while serving as an infantry lieutenant in the Air Cavalry in Vietnam. He quickly developed a love for photography that he took home with him to Colorado. By combining his new craft with his passion for sports and adventure, Kelly created a successful career.

His diverse photo assignments have taken him from Wimbledon to trekking the Himalayas, the Winter Olympics to sailing the Caribbean. He was the official photographer for the U.S. Open Golf Championships for 10 years, and the only American among the official photographers at the Lillehammer Winter Olympic Games. When Robert Redford needed the defining shot to promote his film “A River Runs Through It,” he called on Kelly. Subsequently, he also provided the still photography for Redford’s “The Horse Whisperer.”

Although he has traveled all over the world, many of his favorite photo shoots have taken place at his beloved End of the Road Ranch in western Colorado, where clients such as Polo/ Ralph Lauren have come to work and play with Kelly and his friends and animals.
The Institute is known throughout the world for its research into the causes, prevention, and treatment of orthopaedic disorders. We are committed to solving orthopaedic problems that limit an individual's ability to maintain an active life.

Our research perspective is based on clinical relevance, with a goal of improving the care of the patient. Recognizing that the body's innate healing powers can be harnessed and manipulated to improve the healing process has led to exciting advances in surgical techniques developed by Dr. Richard Steadman and validated at our Institute. Today, the institute is recognized worldwide for Dr. Marc Philippon's pioneering research in the treatment of sports-related injuries to the hip.

Athletes are becoming bigger, faster, and stronger. Unfortunately, their connective tissue does not. Therefore, injuries are becoming more complex. Our research into the anatomy and mechanisms of the complex knee, hip, and shoulder is being recognized worldwide.

We collect data and publish clinical research results on knees, hips, shoulders, spines, feet and ankles, and hands and wrists, and work to improve imaging techniques. Through these efforts, SPRI has become one of the most published and innovative organizations in sports medicine research and education. We publish our findings in relevant peer-reviewed scientific and medical journals, and present our research results at medical meetings worldwide.

Philanthropic gifts are used to advance scientific research and to support scholarly academic programs that train physicians for the future. Through our fellowship and visiting scholar programs, the Institute has now built a network of more than 190 fellows and visiting scholars worldwide who share the advanced ideas and communicate the concepts they learned in Vail to their patient base.

OUR PRIMARY AREAS OF RESEARCH AND EDUCATION ARE:

- **Department of BioMedical Engineering** – advances patient care by focusing on injury mechanisms and prevention, develops and validates novel surgical treatments and rehabilitation techniques, and teaches advanced research protocols using state-of-the-art biomedical research techniques and technologies.

- **Center for Outcomes-Based Orthopaedic Research** – conducts evidence – or outcomes-based research using actual clinical data that aids both physicians and patients in making better and more-informed treatment decisions.

- **Center for Translational and Regenerative Medicine Research** – undertakes biological studies at the cellular level to investigate the causes and effects of degenerative arthritis, techniques of cartilage regeneration, and basic biological healing processes.

- **Imaging Research** – develops and evaluates noninvasive imaging techniques of the joints for the purpose of directing and monitoring clinical treatment and outcomes, and to enhance the clinical relevance of biomechanics research.

- **Surgical Skills Laboratory** – implements new surgical technologies and trains surgeons in new techniques using state-of-the-art equipment.

- **Education and Fellowship Program** – administers and coordinates the physicians-in-residence fellowships and visiting scholars programs, hosts conferences and international medical meetings, produces and distributes publications and educational media, and organizes educational outreach programs in partnership with the local school district.
DEAR FRIENDS,

We will look back at the year 2012 as one of enormous productivity and exciting promise for the Steadman Philippon Research Institute. All of our achievements were made possible through the support of generous individual donors and our corporate and institutional friends. We are most appreciative for your support as you have watched—and in large measure helped—make our vision become reality.

Your support in 2012 of $6 million indicates that you believe in our mission. We are carefully managing your contributions and our corporate commitments. Our overhead rate is 23 percent, which means we are directly applying 77 percent of your donations to our research programs. Other well-known research institutions have overhead rates many times higher than ours.

Our research departments have initiated and completed a record number of research studies in 2012 and 2013. These studies have produced scholarly articles published in peer-reviewed journals, presentations made at national and international conferences, and recognition for our scientists at the highest levels of medicine and science. Our physicians and scientists continue to be recognized by some of the most prestigious professional organizations in the world.

In 2012, 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.

In this Annual Report, you will learn about exciting breakthroughs of which we are most proud:

• Dr. Marc Philippon's landmark donor-funded hip labral reconstruction study was published August 2013 as the lead article in the highest rated sports medicine journal, The American Journal of Sports Medicine (page 32). Because of philanthropic support, we were able to validate this innovative arthroscopic procedure here in Vail. This new procedure changes the landscape of arthroscopic hip surgery and illustrates the value of data collected by SPRI's Center for Outcomes-Based Orthopaedic Research.

• In 2012 and 2013, Dr. Steadman continued to be recognized for another groundbreaking research paper, Ten-Year Survivorship Following Knee Arthroscopy in Patients with Moderate to Severe Osteoarthritis of the Knee. For this research, he received the Richard O'Connor Research Award in May 2012 (page 28). The study was published in the February 2013 issue of Arthroscopy. Your gifts enabled Dr. Steadman and the SPRI team of researchers to develop this arthroscopic treatment package for patients who have osteoarthritis but are not ready to change their activity level or proceed to total knee replacement.

• In another significant achievement, The American Academy of Orthopaedic Surgeons (AAOS) and the Orthopaedic Research and Education Foundation (OREF) recognized donor-supported excellence in research, Improving Outcomes for Posterolateral Knee Injuries, with the prestigious 2013 OREF Clinical Research Award to Robert F. LaPrade, M.D., Ph.D., and a team of SPRI scientists (page 69). This is considered the highest research award for orthopaedic surgeons and scientists and has been called the “Orthopaedic Nobel Prize.” Dr. LaPrade presented his winning paper at the Annual Meeting of the Orthopaedic Research Society and AAOS in March 2013.

• Our crown jewel is the Fellowship Program. Your philanthropy has enabled us to train more than 190 Steadman Philippon surgeons now practicing in leadership roles around the world. One of our 2011-2012 fellows, Dr. Jeff Padalecki, was the recipient of a major international accolade, The Albert Trillat Young Investigator's Award (page 71) for his research team's contributions to the understanding, care, and prevention of injuries to the knee. The award was presented in May 2013 by the International Society of Arthroscopy, Knee Surgery and Orthopaedic Sports Medicine (ISAKOS).

• Coen Wijdicks, Ph.D., director of the Department of BioMedical Engineering was named “Outstanding Reviewer of the Year” (page 70) for 2012 by the European Society of Sports Traumatology Knee Surgery and Arthroscopy (ESSKA).
As part of health reform under the Patient Protection and Affordable Care Act, Karen Briggs, director of the Center for Outcomes-Based Orthopaedic Research, was invited to review grants for the Patient-Centered Outcomes Research Institute (PCORI) in Washington, D.C. (page 71).

Karen’s participation, the record number of publications accepted in major medical journals, and the international recognition received by our physicians and scientists affirm the leadership role SPRI is playing in the world of healthcare and orthopaedics.

Finally, we realize that the next generation of scientists, teachers, and physicians reside in our own communities. In 2012, the Steadman Philippon Research Institute created the Education and Public Outreach Committee (EPOC) in partnership with the Eagle County School District, and Vail Mountain School. Chaired by Board member Senenne Philippon, EPOC’s mission is to inspire and introduce the science, technology, engineering, and mathematics-oriented fields to elementary, middle, and high school students. The curriculum is directed by the scientists and physicians of SPRI, and the centerpiece of activity is the world-class research labs located at the Vail Valley Medical Center. Currently, we are offering tours to fifth graders, support and mentoring for science fairs, robotics competitions for middle schoolers, and a science club for high school students.

The Steadman Philippon Research Institute is productive, efficient, and good at what it does because of you. World-class physicians and scientists, cutting-edge facilities, and life-changing research wouldn’t be possible without your support. We know that, and we want you to know how much we appreciate everything you do every day for SPRI.

On behalf of our dedicated board members, physicians, researchers, and staff, we again wish to express our gratitude. We look forward to your continued support and to updating you on exciting advances being made by the Steadman Philippon Research Institute.

With sincere appreciation,

J. Richard Steadman, M.D.
Co-Chair

Marc J. Philippon, M.D.
Co-Chair
BOARD OF DIRECTORS AND OFFICERS

J. Richard Steadman, M.D.
Founder and Co-Managing Partner
The Steadman Clinic
Vail, Colo.

Marc J. Philippon, M.D.
Co-Managing Partner
The Steadman Clinic
Vail, Colo.

H.M. King Juan Carlos I of Spain
Honorary Trustee

Adam Aron
Chief Executive Officer
Philadelphia 76ers

Howard Berkowitz
Managing Director
BlackRock HPB
New York, N.Y.

Robert A. Bourne
Vice Chairman
CNL Financial Group, Inc.
Orlando, Fla.

Lodewijk J.R. de Vink
Blackstone Healthcare Partners
Former Chairman and
Chief Executive Officer
Warner Lambert, Inc.
Avon, Colo.

Julie Esrey
Trustee Emeritus
Duke University
Vail, Colo.

Stephanie Flinn
Hobe Sound, Fla.

George Gillett
Chairman
Booth Creek Management Corporation
Vail, Colo.

Earl G. Graves, Sr.
Chairman and Publisher
Earl G. Graves, Ltd.
New York, N.Y.

Ted Hartley
Chairman and Chief Executive Officer
RKO Pictures, Inc.
Los Angeles, Calif.

Frank Krauser
President and CEO
NFL Alumni (retired) and
Pro Legends, Inc.
Ft. Lauderdale, Fla.

Greg Lewis
President
Greg Lewis Communications
Basalt, Colo.

Tom Mars
Chief Executive Officer and President
The Steadman Philippon
Research Institute
Vail, Colo.

John G. McMillian
Chairman and Chief
Executive Officer (retired)
Allegheny & Western
Energy Corporation
Coral Gables, Fla.

Peter Millett, M.D., M.Sc.
The Steadman Clinic
Vail, Colo.

Larry Mullen, Jr.
Founder, Partner, and Drummer
U2
Dublin, Ireland

Cynthia L. Nelson
Cindy Nelson, LTD
Here 2 Help
Vail, Colo.

Mary K. Noyes
Freeport, Maine

Al Perkins
Chairman Emeritus
RevGen Partners
Denver, Colo.

Senenne Philippon
Vail, Colo.

Cynthia S. Piper
Trustee
Hazelden Foundation
Hamel, Minn.

Steven Read
Co-Chairman
Read Investments
Orinda, Calif.

Gary S. Rosenbach
Financial Advisor (retired)
Vail, Colo.

Kenneth Schanzer
President
NBC Sports (retired)
Avon, Colo.

Damaris Skouras
Founder and Chief Executive Officer
Global Reach Management Company
New York, N.Y.

Gay L. Steadman
Vail, Colo.

Stewart Turley
Chairman and Chief
Executive Officer (retired)
Eckerd Corporation
Bellaire, Fla.

Norm Waite
Vail, Colo.
IN MEMORIAM:

J. Michael Egan
President and Chief Executive Officer
The Steadman Philippon Research Institute
Vail, Colo.

The Honorable Jack Kemp
Chairman and Founder
Kemp Partners
Washington, D.C.

EMERITUS:

Harris Barton
Managing Member
Hbam
Palo Alto, Calif.

Jack Ferguson
Founder and President
Jack Ferguson Associates
Washington, D.C.

H. Michael Immel
Executive Director (retired)
Alabama Sports Medicine and Orthopaedic Center
Lafayette, La.

Arch J. McGill
President (retired)
AIS American Bell
Scottsdale, Ariz.

Betsy Nagelsen-McCormack
Professional Tennis Player (retired)
Orlando, Fla.

OFFICERS:

Tom Mars
Chief Executive Officer and President

John McMurtry
Director of Development

Amy Ruther
Administration Director

Monica White
Controller/Treasurer
It was long before innovative surgical techniques like microfracture and the healing response. Before a massive and unparalleled database. Before a world-class clinic and research institute in Vail. An approach to injury rehabilitation that would change sports medicine forever was beginning to unfold in the home of Richard and Gay Steadman on Capri Street in South Lake Tahoe, California.

U.S. Ski Team members who had suffered career-threatening injuries were getting up as early as 6:00 a.m., which for teenage and early-20s skiers was a near medical miracle itself. Injured athletes were sitting on the Steadman’s living room floor or perched on the dining room table doing range-of-motion and resistance exercises within days after complex surgeries. And Dr. Steadman was on the floor guiding, resisting, and gently pushing the skiers far beyond the edge of current medical practice.

“I guess a lot of people thought I was crazy,” Steadman told a reporter. “In fact, I know they did. But I didn’t wake up one morning with the sensation that motion was better. It had already been proven (in theory) by the Swiss.”

While the skiers’ competitors around the country and rest of the world were immobilized in hard casts for six weeks or longer after similar injuries, the Steadman patients were moving, walking, running, and sometimes skiing on bones that had been shattered and joints that had been twisted apart. Elite skiers have as many fractures and knee injuries as normal people have common colds.

**Nourishing Body and Spirit**

The athletes were not only working out at the Steadman home, they were living there. “I really didn’t know him that well,” recalls Olympic Gold Medal winner Phil Mahre, “but Dr. Steadman and Gay took me into their home and treated me like one of their own children. What doctor does that? He would get up early to work with us, make rounds, perform operations, see patients in the clinic, attend meetings, and then come back home late that night to work with us again.”

“Our house was certainly a revolving door for athletes during those years,” remembers Liddy Steadman Lind. “My mom was amazing, always in the kitchen cooking delicious meals, happy to welcome the kids and make them feel like our home was their home. I think back on that and I’m amazed. My mom was as much a part of the recovery process as anyone on the team. She nourished body and spirit. It was so exciting to see the successes and the fulfillment my parents got from helping the kids overcome their injuries and achieve their goals.”

Among those in-house patients during the early days were five past and future champions—Cindy Nelson, Phil Mahre, Christin Cooper, Steve Mahre, and Mark Taché. Here are their stories.

**Cindy Nelson: “Who is this guy?”**

“In 1977, I was leading in overall World Cup points,” says Cindy Nelson, who won Olympic, World Championship, World Cup, and National medals, “but I crashed at the finish line in Germany and knew right away I had broken my leg. The doctors wanted to perform surgery before I left, but I wouldn’t let them. I wanted to go back to the States for the operation.”

“I woke up after surgery at Barton Memorial Hospital in South Lake Tahoe. Dr. Steadman leaned over the hospital bed, looked down at the open cast, and said, ‘Let’s take a look at this.’ ”

“What he saw wasn’t pretty. He cradled my leg in his arms and said, ‘Cindy, I want you to point your toes toward the wall.’ ”

“Right, Dr. Steadman. My leg is broken. I can’t do that.”

“No, it’s not, Cindy. I just fixed it. Now point your toes toward the wall.”

“I’m thinking, ‘What? Who is this guy?’ To my astonishment, I was able to point my toes at the wall 10 times.”

“Now do it again,” said Steadman. “Great.”

“He sticks my leg back into the walking cast and says, ‘Okay, let’s go home.’ ”

“We went to his house and I stayed in a guest bedroom, the first of many times to follow.”

“The recovery process was a remarkable piece of rehabilitation,” comments Nelson. “Shortly after he began working with me, Dr. Steadman wanted me to put weight on the ankle (the one with four screws in it) to stimulate the area and promote healing. A photographer at the Tahoe Times took a picture of me jogging down the street on crutches. Richard was jogging along with me on his way to work.”

Six weeks after surgery, he examined an x-ray, nodded his approval, and took the cast off. “Go back to the house and get your gear,” he said. “We’re going skiing.”

“I skied as though I had never missed a day. My early impression of Dr. Steadman was forever forged as an almost God-like figure –‘Steady.’ A quiet,
gentle giant of genius, possessing a magical touch and totally unaware of his greatness.”

“He has an incredible pioneering spirit. He always wants to find the best solution for each individual patient. I credit him with having the most impact on my career than any other person. What he has done for me reaches far beyond my many surgeries, as I continue to feel his influence in my life every day. He’s a great surgeon and equally as great a man and friend.”

Phil Mahre: Career Saver

“I didn’t really know how severe my injury was until a press conference a few days after I had broken my ankle in March 1979,” says Phil Mahre, talking about his crash in the pre-Olympic giant slalom a year before the games. “I should have realized something was up when the surgery took four-and-a-half hours and he inserted seven screws, plus a two-inch plate. The ankle had been shattered into 20 pieces.”

“Most doctors would have said my career was over. I think Richard was even reluctant to say that I would be competitive after this kind of injury, but he assured the reporters that I would be okay.”

Less than a year later, I won the silver medal in the Olympics back at Lake Placid. I’ve always said I had a great doctor, but Richard said he had a great patient. Those two things go together. A person can have a great surgeon, but if he or she doesn’t do the rehab, the results might be so-so.”

“I put my complete trust in Dr. Steadman. Whenever I got injured, he was the first person I would call. He reminds me a lot of my dad. He has a way with people. He touches people. He’s a big man in stature, but a real teddy bear at heart.”

“He’s always thinking; always something on his mind. Working on a new surgical technique downstairs in a basement lab for Richard is like being a kid in a candy store.”

Phil Mahre, on his Steadman-repaired legs, became one of the most successful ski champions the United States has ever produced—27 World Cup wins, three overall World Cup titles, two Olympic medals, one silver and one gold. Phil was the first American to win the overall World Cup title.

Christin Cooper: The Impatient Patient

“Am I ready? Am I ready? Can I go? Can I start training with the team again?” Seventeen year-old Christin Cooper (now Christin Cooper-Taché) had broken her ankle training downhill in Chile. A U.S. Ski Team teammate had been seriously injured minutes earlier.

Dr. Richard Steadman was a U.S. Ski Team physician. He flew back to Tahoe with both young skiers, settled them into his home, performed the needed surgeries, and began their rehabilitation program—same house, same guest room, same let’s-get-started-moving-those-joints attitude. He called Cooper his impatient patient.

“We were really his guinea pigs in the best sense of the word,” says Christin, a charter member of what was called the Tahoe Fracture Team. “Dr. Steadman is known all over the world for being progressive, but he also knows that none of this works if you come back too soon. If he tried something and you told him it worked, he put that information into his mind’s bank, thinking maybe we’ve been too conservative here. Maybe we’ll do it different from now on. He was changing the paradigm.”

“From the start, I realized that Richard Steadman is one of the most ‘present’ people I’ve ever met. From the moment he steps into your room, he treats the elite athlete and the weekend exerciser from Cincinnati with that full amount of presence. I learned to try to do that from him.”

“I tell people that Dr. Steadman will do everything possible not to operate. Even if he performs some innovative new procedure, getting back out there is all about rehab. That’s what he’s progressive about—working from the moment you get out of surgery. It’s something I learned early on and I’m glad I did. He changed the way of looking at what’s possible, and his thinking has influenced treatment, rehabilitation, and prevention across all sports. He made my skiing career possible and my second life pain-free.”
Christin had a career that included five World Cup wins, six National titles, three World Championship medals, and an Olympic silver medal.

**Steve Mahre: Gold Medal Knees**

“In the spring of 1979, I was playing volleyball at Lake Placid, came down kind of weird, and did something to my knee,” says Steve Mahre, who, in addition to a slew of World Cup wins and World Championship medals, won an Olympic silver medal in the same race his brother won gold.

“I didn’t know Dr. Steadman, but the U.S. Ski Team said this is the guy you’re going to see, so that’s what I did. Otherwise, I probably would have gone home or looked for someone else to operate on me.”

“When he started making me do things right after surgery, I realized that he had a completely different approach. He was ahead of the game, then more doctors and athletes started doing it his way.”

“In December of 1981, he did more work, repairing some meniscus damage in both knees. Within a day, at his home and at the clinic, I was doing exercises or riding a stationary bike. When we were finished, he said it looked like I had ‘gold medal’ knees. Six weeks later I won the gold medal at the World Championships in Austria (the U.S.’s first gold medal in a world championship men’s ski race—ever). I was thinking, ‘this man has something in his head that makes him able to predict the future.’”

“Richard Steadman never says, ‘I don’t think we can go beyond where we are right now.’ Instead, he thinks we haven’t even scratched the surface as to what can be changed or what will make something better.”

**Mark Taché: Giving Back**

Mark represented the U.S. Team for eight years, competed on the World Cup Circuit and in two FIS World Championships, and retired from amateur skiing as the top-ranked American slalom skier in 1985. In 1986, he joined the World Pro Ski Tour, where in 1987 he earned top American honors.

“I wasn’t the athlete with all the medals,” says Mark, “but the Steadman’s door was always open. Over the years, he operated on both of my knees, and they came back in great shape. I got to retire when I was ready to stop competing, not because of an injury. At an age where many of my peers are having joint replacements or have a limited lifestyle, I’m still very active, and I owe it completely to Dr. Steadman. He wasn’t just looking at the short term, he was always looking ahead at what’s going to happen later in life.”

“Even now, before I go skiing, I make sure I do the warm-up exercises he taught me 30 years ago.”

“Today, the Steadman Philippon Research Institute is one of the most important research institutions in the world. People don’t get a lot of opportunities to give back directly to something that has given them so much, but this is our chance. We are all benefitting from the work that is going on here, and giving back is a way of closing the circle.”

Monday, June 10, 2013

Remember those long days back in South Lake Tahoe or the frenetic pace Dr. Steadman established once he moved to Vail? It hasn’t changed. A more-or-less typical day now begins at 7:00 a.m. with academic meetings, continues in the operating room or clinic from 9:00 a.m. until 5:00 p.m., and ends later that evening with meetings.

“This is a man who was put on earth to do what he is doing. He just won’t stop. There is no end to his day,” says Christin Cooper-Taché. She meant it literally and figuratively.

Dr. Steadman and his colleagues have trained hundreds of physicians, shared the results of their research with thousands, and impacted the lives of millions of people throughout the world. Yet, in Richard Steadman’s visionary mind, his work is just getting started.
SCIENTIFIC ADVISORY COMMITTEE

THE SCIENTIFIC ADVISORY COMMITTEE CONSISTS OF DISTINGUISHED RESEARCH SCIENTISTS WHO REPRESENT THE INSTITUTE AND SERVE AS ADVISORS IN OUR RESEARCH AND EDUCATIONAL EFFORTS, IN OUR FELLOWSHIP PROGRAM, AND TO OUR PROFESSIONAL STAFF.

Steven P. Amooczky, D.V.M.
Director
Laboratory for Comparative Orthopaedic Research
Michigan State University
East Lansing, Mich.

Stephen S. Burkhat, M.D.
The San Antonio Orthopaedic Group
San Antonio, Texas

Lars Egbretsen, M.D., Ph.D.
Professor
Orthopaedic Center Ullevål University Hospital and Faculty of Medicine
University of Oslo and Oslo SportsTrauma Research Center
Oslo, Norway

John A. Feagin, M.D.
Emeritus Professor of Orthopaedics
Duke University
Durham, N.C./Vail, Colo.

Troy Flanagan, Ph.D.
High Performance Director
U.S. Ski and Snowboard Association (USSA) Center of Excellence
Park City, Utah

Charles P. Ho, Ph.D., M.D.
Director
Imaging Research
The Steadman Philippon Research Institute
Vail, Colo.

Bryan T. Kelly, M.D.
Co-Director
Center for Hip Preservation
Hospital for Special Surgery
New York, NY

Mininder S. Kocher, M.D., M.P.H.
Assistant Professor
Orthopaedic Surgery
Harvard Medical School,
Harvard School of Public Health
Children's Hospital,
Boston, Department of Orthopaedic Surgery
Boston, Mass.

Robert F. LaPrade, M.D., Ph.D.
Chief Medical Officer
The Steadman Clinic
Vail, Colo.

C. Wayne McIlwraith, D.V.M., Ph.D.
Director
Orthopaedic Research Center and Orthopaedic Bioengineering Research Laboratory
Colorado State University
Fort Collins, Colo.

Peter J. Millett, M.D., M.Sc.
Chief, Shoulder Surgery Service
The Steadman Clinic
Vail, Colo.

Marc J. Philippin, M.D.
Co-Managing Partner
The Steadman Clinic
Vail, Colo.

William G. Rodkey, D.V.M.
Chairman
Scientific Advisory Committee
Director
Center for Translational and Regenerative Medicine Research
The Steadman Philippon Research Institute
Vail, Colo.

J. Richard Steadman, M.D.
Co-Managing Partner
The Steadman Clinic
Vail, Colo.

John (JP) Warner, M.D.
Chief
Shoulder Surgery Service
Harvard University
Boston, Mass.

Savio Lau-Yuen Woo, Ph.D., D.Sc. (Hon.)
Ferguson Professor and Director
Musculoskeletal Research Center
University of Pittsburgh
Pittsburgh, Pa.

Dr. John Feagin Receives Award from Dr. John A. Bergfeld of the Cleveland Clinic at Toronto Congress

Retired Col. John Feagin, Jr., M.D., was named an honorary member of the International Society of Arthroscopy, Knee Surgery and Orthopaedic Sports Medicine (ISAKOS) on May 12, 2013, at the group’s biennial congress in Toronto. An international society of surgeons established to advance the worldwide exchange and dissemination of education, research, and patient care in arthroscopy and orthopaedic sports medicine, ISAKOS consists of more than 3,600 members from 90 different countries.

ISAKOS held biennial congresses in Brazil in 2011, Japan in 2009, and Italy in 2007, among other places. At the 9th annual congress in Toronto, Dr. Feagin, a member of the Scientific Advisory Committee at the Steadman Philippon Research Institute (SPRI), was recognized in an awards ceremony by renowned orthopaedic surgeon John A. Bergfeld, M.D., of The Cleveland Clinic.

“It’s a great honor from a very important organization,” said Feagin, upon receiving the honorary membership. “ISAKOS has helped advance sports medicine tremendously.”

ISAKOS congresses include live surgical demonstrations, hands-on workshops, discussions and debates, technical exhibits, scientific paper sessions, symposia, instructional course lectures, and casual lunchtime lectures. But with the vast diversity of membership in ISAKOS, the conferences are known for their vitality and variety, as well as their high-quality presentations. At ISAKOS congresses, leaders like Feagin — from national and regional societies all over the world — meet to share important research and information.

“Dr. Feagin is a perfect candidate to become a member of ISAKOS,” said Dr. Richard Steadman, “as their mission aligns so well SPRIs’ — keeping people of all ages physically active through orthopaedic research and education in arthritis, healing, rehabilitation, and injury prevention.”

SPRI’s Scientific Advisory Committee, of which Feagin is a member, consists of distinguished research scientists who represent the institute and serve as advisers for its research and education efforts, fellowship program and staff.

SPRI was founded in 1988 by orthopaedic surgeon Dr. Richard Steadman as the Steadman Sports Medicine Foundation, and has since gone on to influence the practice of orthopaedics throughout the world. Based in Vail, the 501(c)(3) charitable organization has become one of the most published organizations in orthopaedic sports medicine research and education.

ISAKOS will celebrate its 20th anniversary in 2015 at a biennial congress in Lyon, France.
On August 1, 2013, Texas native Coley Gatlin, M.D., began his work as the Griffin Visiting Scholar for Clinical Sports Medicine MRI.

The Visiting Scholar Program in Sports Medicine MRI is sponsored by the Chicago-based Kenneth and Anne Griffin Foundation. The Foundation is committed to improving the worlds of education, healthcare, and the arts.

Prior to 2012, the Visiting Scholar Program was sponsored by Siemens Medical Solutions USA.

After settling into his work as a visiting scholar, Dr. Gatlin visited with the editors of the SPI News and talked about his life and his experiences since arriving in Vail.

**SPRI:** Tell our readers about your background.

**DR. GATLIN:** “I grew up and went to high school in Liberty Hill, Texas, a small town northwest of Austin, and I got my undergraduate degree at The University of Texas. My wife, Andrea, and I have four children—Caroline, 13; Claire, 11; Nathanael, 4; and Brandt, 6.”

**SPRI:** What were some of your work experiences before coming to SPIR?

**DR. GATLIN:** “I was in private practice family medicine in Kerrville, Texas; medical director of a rural health clinic in Utopia, Texas; an emergency room physician at Peterson Regional Medical Center in Kerrville; and a radiology resident at The University of Texas Health Science Center in San Antonio.”

**SPRI:** Why did you decide on a career in medicine?

**DR. GATLIN:** “The primary force came from my experiences as an athlete growing up in a small town in Texas. I had several positive interactions with physicians interested in sports medicine, and I liked the idea of being able to provide my family, friends, and community with a higher level of care. My choice of a career in medicine was also driven by a desire to help others and to pursue something that I would always find challenging.”

**SPRI:** How did you first learn about the Steadman Philippon Research Institute?

**DR. GATLIN:** “In searching through medical literature—specifically about sports medicine and knee injuries—and Dr. Richard Steadman’s name kept appearing as the lead author or co-author of studies on the knee.”

**SPRI:** How did you become aware of the Griffin Visiting Scholar for Clinical Sports Medicine MRI at SPIR?

**DR. GATLIN:** “I was looking for different musculoskeletal radiology fellowships and this one seemed like a perfect fit for my interests. The Griffin Visiting Scholar program is unique because it is more tailored toward sports medicine. When our radiology residency class had its unofficial graduation party, I think I won the de facto award for getting the best fellowship.”

**SPRI:** What were your first impressions of SPI and the Steadman Clinic?

**DR. GATLIN:** “I was very impressed. Two stories, multiple rooms, multiple athletes being treated. SPI had all of the labs and other resources just a few steps away. I don’t think I’ve ever seen a place that has such a variety of staff and facilities all in one place.”

**SPRI:** Did anything surprise you?

**DR. GATLIN:** “When I got here, the SPIR Scientific Advisory Committee was meeting and the previous fellows were presenting their research projects. I was really impressed with the level of expertise and the well-known clinicians from throughout the country, including representatives of the International Olympic Committee. Also, I was impressed by the quality of research conducted by the SPIR fellows in such a short period of time.”

**SPRI:** What has been the most challenging aspect of your work at SPIR?

**DR. GATLIN:** “I came away from those meetings not knowing how I was going to do so much, but now I’ve seen that it is really a team effort. The work is organized and compartmentalized to help us do our best. It will still be a challenge to balance clinical responsibilities with research efforts and to develop a research project that will produce outcomes with clinical significance.”

**SPRI:** What goes on during your typical day?

**DR. GATLIN:** “Reading MRIs of the foot, knee, ankle, shoulder, elbow, cervical spine, lumbar spine, etc.; taking notes; interacting with Dr. Ho on a minute-by-minute or hour-by-hour basis; working with other scholars and fellows; researching previous studies; answering questions; writing reports.”

**SPRI:** What would you tell others about SPIR?

**DR. GATLIN:** “It’s a great place to spend a year or live a lifetime.”

**SPRI:** What would you tell potential supporters about SPIR?

**DR. GATLIN:** “I would encourage people to support SPIR because of the clinical research conducted here that impacts patients at all levels. There are world-class orthopaedic surgeons and scientists at SPIR who will continue to be at the forefront of sports medicine research.”

**SPRI:** Any final comments?

**DR. GATLIN:** “I would like to thank Mr. and Mrs. Griffin and their Foundation, as well as the Steadman Philippon Research Institute, for this wonderful opportunity. The Visiting Scholar Program is giving young physicians a chance to expand their knowledge and skills in ways that will help them grow professionally and make a positive contribution to the medical and scientific communities.”
In 2012, SPRI received 1,148 separate gifts and support from individuals, foundations, and corporations. This combined support, including special events, amounted to $5,041,441.

The Institute is grateful to all the individuals, corporations, and foundations for their support of the Institute in 2012. Their vision ensures the advancement of evidence-based medical research and joint preservation research, science, and care, as well as the education of physicians for the future. We extend our gratitude to these supporters for their generous contributions.
On November 9, 1988, the Institute was incorporated as a not-for-profit educational and research organization dedicated to advancing modern medical science and the education of young physicians. The Institute is deeply grateful to the following members of the distinguished 1988 Society, whose cumulative giving totals over $1 million.

Mr. Herbert Allen; Arthrex, Inc.; Mr. and Mrs. George N. Gillett, Jr.; Mr. Kenneth C. Griffin; Linvatec; Össur Americas, Inc.; Smith & Nephew Endoscopy; Dr. and Mrs. J. Richard Steadman; Vail Valley Medical Center
Sharing our research findings throughout the world is a vital part of our educational and research mission. We wish to thank the following sponsors for their support:

**EUROPEAN VISITING SCHOLAR, SPONSORED BY ARTHREX, INC.**

**BRAZILIAN VISITING SCHOLAR, SPONSORED BY INSTITUTO BRAZIL DE TECNOLOGIAS DA SAÚDE**

**VISITING SCHOLAR FOR CLINICAL SPORTS MEDICINE MRI, SPONSORED BY THE KENNETH AND ANNE GRIFFIN FOUNDATION.**

**BIOSKILLS RESEARCH AND EDUCATION GRANT, SPONSORED BY SMITH & NEPHEW ENDOSCOPY**
Synthes USA Products, LLC
Mr. Oscar L. Tang and Dr. Agnes Hsu-Tang
Mr. and Mrs. William R. Timken
Mr. and Mrs. Norm Waite
Ms. Valerie Weber
Mr. and Mrs. Patrick Welsh
Mr. Rodney Wimmer
Mr. Craig Yates, Sr.

$1,000 - $9,999

Alpine Bank
Mr. Jeffrey Anderson
ArthroCare Corporation
Arthroscopy Association of North America
Mr. and Mrs. Joe Bagan
Mr. and Mrs. Ronald P. Baker
Mr. and Mrs. Paul Baker
Mr. Foster Bam
Ms. Nancy Bechtie
Michael J. Zamkow & Sue E. Berman
Charitable Foundation
Biomet, Inc.
Mr. and Mrs. Bruce A. Blakemore
Mr. and Mrs. John A. Boll
Mr. and Mrs. Richard Bouret
Mr. and Mrs. Robert Bowers
Mr. and Mrs. David R. Brewer, Jr.
Mr. and Mrs. Christopher W. Brody
Mr. and Mrs. T. Anthony Brooks
Ms. Dorothy W. Browning
Mr. and Mrs. John L. Bucksbaum
Ms. Beatrice Busch-von Gontard
Mr. and Mrs. Preston Butler
Ms. Martha C. de Castilho
Mr. Donald M. Campbell
Mr. and Mrs. James R. Cargill
Ms. Beverly Hay de Chevriex
Mr. and Mrs. Pedro Cerisola
Mr. and Mrs. Donald R. Chappel
Mr. and Mrs. Michael Charles
Mr. Lim Chee-Wah
Mr. and Mrs. Hyonmyong Cho
Clinical Trial Site Solutions
Mr. Mike Collins
Dr. and Mrs. Kenneth H. Cooper
Mr. Marshall C. and Mrs. Jane R. Crouch
Mr. and Mrs. Andrew P. Daly
General and Mrs. Peter Dawkins
Mr. and Mrs. John W. Dayton
Delta Dental
Mr. and Mrs. Thomas C. Dillenberg
Diversified Radiology
Mr. and Mrs. Edward C. Dowling
DRM Medical
Mr. and Mrs. John M. Egan
Mr. and Mrs. Lynn Elliott
Dr. Gail Ellis
Mr. Israel A. Englander
Mr. and Mrs. William T. Esrey
Dr. and Mrs. Frederick Ewald
Dr. John A. Feagin and Mrs. Marty Head
Dr. Sue Fogel
Dr. Joe Fogel and Dr. Caroline Elliott
Mr. John H. Steel and
Mrs. Bunny Freidus
Mr. Christopher B. Galvin
Mr. and Mrs. Bradley Ghent
Mr. and Mrs. George N. Gillett, Jr.
Ms. Donna M. Giordano
Mr. and Mrs. Matthew A. Gobec
Mr. Paul Gordon
The Flora Foundation
The Greenburg-May Foundation, Inc.
Mr. and Mrs. Peter S. Hearst
Mr. Blake A. Helm
Mr. Robert K. Hendricks
Mr. and Mrs. Frank C. Herringer
The William and Flora Hewlett Foundation
Mr. James Hill
Ms. Lyda Hill
Mr. Charles Hirschler and
Ms. Marianne Rosenberg
Mr. and Mrs. David C. Hoff
Mr. and Mrs. Graham Hollis
Mr. and Mrs. Philip E. Hoversten
Mr. and Mrs. George H. Hume
Mr. and Mrs. Walter Hussman
Admiral and Mrs. Bobby Inman
Mr. Brice Jackson
Ms. Mary H. Jaffe
Mr. and Mrs. Thomas Jaffe
Mr. and Mrs. John V. Jaggers
Dr. Arlon Jahnke, Jr.
Mr. and Mrs. Charles Johnson
Mr. Charles C. Johnston
Mr. and Mrs. Daniel S. Jones
Dr. and Mrs. David Karl
Dr. and Mrs. Malvin Keller
Mr. and Mrs. Scott Kepner
Ms. Vanessa K. Kerzner
Mr. and Mrs. John Kirchner
Mr. Gary Koenig
Mr. and Mrs. Bob Krohn
Dr. and Mrs. Robert F. LaPrade
Mr. and Mrs. Gary Leeds
Mr. and Mrs. Michael Leeds
Mr. and Mrs. Robert Lemos
Linvatec
Mr. and Mrs. John W. Mabee
Mr. and Mrs. Thomas A. Mars
Ms. Sandra Mason
Mr. and Mrs. Charles McAdam
Mr. Walter McCormack
Mr. Jeffrey S. McCormick
Mr. and Mrs. Arch McGill
Mr. Bruce McKenna
Ms. Linda McNamee
MedSynergies-Surgical Division
Mr. and Mrs. Eugene Mercy, Jr.
Mr. Richard Michaux
Mr. and Mrs. George Middlemas
Mr. and Mrs. Kirk Mielenz
Ms. Betty L. Mobley
Mr. Alan D. Moore
Mr. William and Mrs. Kay Morton
Mr. and Mrs. Houston Munson
Mr. and Mrs. Robert Musser
Mr. James H. and
Mrs. Katherine R. Mutchnik
Mr. and Mrs. Don H. Nelson
Ms. Barbara A. Nelson
Pedro Vital Netto
Newton Running
Mr. and Mrs. James T. Niemeyer
Northside Coffee & Kitchen
Mr. Donald A. Nyman
Mr. and Mrs. John Oltman
Opedix
ORP Hanger
Orthopedic Rehabilitation Products, Ltd.
Mr. John Osterweis
Dr. and Mrs. Stan Pappelbaum
Mr. and Mrs. Preston S. Parish
Mr. and Mrs. Addison Piper
Mr. Michael Price
Mr. and Mrs. Paul Raether
Mr. Karl E. Rathjen
RevGen Partners
RJG Foundation
Mr. and Mrs. Sanford Robertson
Dr. William Rodkey
Mr. and Mrs. Michael D. Rose
Ms. Jean Schikora
Mr. and Mrs. Mark J. Schwartz
Mr. Edward D. Scott
Mr. and Mrs. Brad Seaman
Mr. and Mrs. Gordon I. Segal
Mr. O. Griffith Sexton
Mr. Michael Shannon
Mr. and Mrs. John Simon
Ms. Damaris Skouras
Mr. Michael Byram and
Mrs. Ann B. Smead
In 2012 individuals, corporations and foundations contributed $6,007,183 to support the Institute’s research and education programs.
FELLOWSHIP BENEFACTORS

Fellowship Benefactors fund the research of one fellow for one year at a level of $10,000. As are other contributions to the Institute, this is a fully tax-deductible contribution that provides an opportunity for the benefactor to participate in a philanthropic endeavor by not only making a financial contribution to the educational and research year, but also by getting to know the designated fellow. Each benefactor is assigned a fellow, who provides written reports and updates of his or her work. We extend our gratitude to the following individuals and foundation for their generous support:

MR. AND MRS. MITCH HART
THE FRED AND ELLIS ISELIN FOUNDATION
MS. MARY NOYES
MR. AND MRS. JAY PRECOURT
MR. AND MRS. STEWART TURLEY

Mr. Marshall Gordon
Mr. and Mrs. Michael Gordon
Mr. John H. Gorman
Mr. and Mrs. Charles Haime
Mr. and Mrs. Bill Harriman
Mr. and Mrs. William M. Hazard
Mr. Steve Helms
Here to Help of Vail, LLC
Mr. William R. Hibbs
Mr. and Mrs. Preston Hotchkis
Mr. and Mrs. Kirk D. Huffard
Ms. Liba Icahn
Mr. and Mrs. Bill Jensen
Mr. Robert G. Jones
Mr. and Mrs. Peter Kalkus
Mr. and Mrs. Robert E. Kavanagh
Mr. and Mrs. Arthur Kelton, Jr.
Mr. and Mrs. John Kurdilla
Mr. and Mrs. Frederick C. Lane
Ms. Cheryl Lee
Mr. and Mrs. Joseph A. Mahoney
Ms. Carol A. McCurley
Dr. Michael J. Milne
Ms. Cindy L. Nelson
Mr. and Mrs. Andy Newberry
Mr. Stephen M. O’Shaughnessy
Dr. and Mrs. Scott Paschal
Mr. Richard Pearstone
Mr. Greg Perkins
Mr. Robert H. Pickens
Mr. Matthew Read
Mr. G. Shantanu Reddy
Mr. and Mrs. Ronald H. Riley
Mr. and Mrs. Michael Rothman
Ms. Mary D. Sauve
Mr. and Mrs. Marvin Schilling
Mr. and Mrs. Keith Schneider
Mr. Jeffry S. Shinn
Mr. Robert Simpson
Mr. George A. Skouras
Mr. and Mrs. H. William Smith
The Patricia M. and H. William Smith, Jr. Foundation
Mr. and Mrs. Lyon Steadman
Ms. Debra Stein Wagner
Mr. Penfield Tate
Dr. and Mrs. William R. Weaver
Mr. and Mrs. Richard Wenninger
Dr. and Mrs. Stephen A. Wright

Mr. John T. Acklen
Ms. Evelyn Albert
Mr. Pinar M. Alisan
Mr. and Mrs. John L. Allen
Ms. Rona Altschuler
Mr. Jamie Alverde
Mr. and Mrs. Walter I. Anasovitch
Mr. and Mrs. Jack R. Anderson
Dr. Gary G. Andreoletti
Mr. Irving Andrzelewski
Dr. Julie Anthony
Dr. and Mrs. Adam Anz
Mr. Larry S. Arbuthnot and Ms. Ann Rammond
Mr. Alfredo Asali
Mr. and Mrs. John A. Baghott
Mr. and Mrs. Bryant P. Barnes
Ms. Elizabeth D. Baubigny
Mr. and Mrs. Jack Beal
Mr. and Mrs. Thomas Beat
Dr. and Mrs. Quinn H. Becker
Mr. Shlomo Ben-Hamoo
Mr. and Mrs. Philip M. Bethke
Ms. Susan Biddle
Mr. and Mrs. Gary Biszantz
Ms. Jane R. Blanch
Mrs. Susan M. Brodine
Mr. and Mrs. Robert Bruce
Mr. Kenneth A. Bugosh
Mr. Kurt Burghardt
Mr. Bill Burns
Mr. Paul D. Bushong
Mr. and Mrs. Thomas Butler
Mr. Rodger W. Bybee
Mr. Harold E. Cahoy
Mr. and Mrs. J. Marc Carpenter
Ms. Marilyn M. Carr
Mr. Nelson Case
Mr. Robert L. Castrodale
Chalat Hatten Koupal & Banker PC
Dr. Lee S. Chapman
Dr. Teresa Cherry
Mr. Joe Chess
Mr. Kurt Christiansen
Mr. David J. Christie
Mr. and Mrs. Kenneth Church
Mrs. Annemette Clausen
Mr. John Coker
Ms. Tiffany A. Cook
Mr. and Mrs. Jonathan Coon
Mr. and Mrs. Chris Cooper
Mr. Justin Cooper
Mr. Robert O. Copito
Mr. and Mrs. Robert Corcoran
Mr. and Mrs. Steven R. Cornelli
Mr. and Mrs. Spencer Cornett

$100 - $499

Mr. Alberto A. Abed
Dr. and Mrs. Jeffrey Abrams
Mr. Peter Abuisi
The education of orthopaedic surgeons is a critically important mission of the Institute. Academic Chairs provide the continuity of funding necessary to train physicians for the future, thus ensuring the continued advancement of medical research.

Currently, more than 190 SPRI fellows practice around the world. We wish to express our gratitude and appreciation to the individuals who have made a five-year $125,000 commitment to the fellowship program to support medical research and education. In 2012, six chairs provided important funding for the Institute’s research and educational mission. We are most grateful for the support from the following individuals:

Mr. and Mrs. Lawrence Flinn
Mr. and Mrs. Peter Kellogg
Mr. and Mrs. Al Perkins
Mr. and Mrs. Steven Read
Mr. and Mrs. Brian P. Simmons
Mr. David M. Kuhl
Mr. James Kurtz
Mr. and Mrs. Roger Leavitt
Mr. William A. Lederer
Mr. John E. Leipprandt
Mr. and Mrs. Mark F. Leonard
Mr. Thomas C. Leonhardt
Mr. Andre Lessard
Brigadier General Samuel K. Lessey, Jr.
Mr. Fredric W. Levin
Mr. Burton Levy
Dr. and Mrs. James W. Lloyd
Mr. David R. Logan
Mr. Carlos Lombardo
Mr. Bernard B. Lopez
Mr. Andrew M. Loveland
Mr. Richard Lubin
Mr. and Mrs. Michael A. Ludeman
Ms. Kim Lundgren
Mr. and Mrs. Antonio Madero
Mr. and Mrs. James Mahaffey
Mr. Michael J. Mahoney
Mr. Paul F. Mahre
Mr. John P. Manes
Ms. Kathy W. Manifold
Ms. Kristin Mapstone
Ms. Audrey E. Marcoff
Marriott Vail
Mr. and Mrs. Michael Marsh
Mr. John W. Martin
Mr. and Mrs. Rocco J. Martino
Mr. Frank Mastriana
Dr. and Mrs. Charlie May
Mr. Eion F. McDowell
Ms. Patricia A. McGivern
Mr. Robert L. McGrath
Ms. Kimberly McKay
Mr. Calvin Mclachlan
Mr. and Mrs. John G. McMurtry
Mr. Peter R. McNally
Mr. and Mrs. James M. McPhetres
Dr. Stephen B. Meisel
General George Miller
Mr. Todd Milner
Mr. David L. Mitchell
Ms. Marla Mogul Jaffe
Mr. and Mrs. Chandler J. Moisen
Mr. and Mrs. Evan Moody
Sr. Jorge Morales
Mr. Dan Moskovitz
Mr. Aubert J. Mowry
Mr. and Mrs. A.J. Mowry
Ms. Jane Muhrckie
Mr. and Mrs. Bruce Nelson
Dr. Todd Neugent
Dr. Myron Nevins
Ms. Raisa Nicol
Mr. Michael Niemann
Mr. John T. Nita
Dr. John R. Paddock
Mr. Agus Pambudi
Mr. and Mrs. Mark A. Pancratz
Ms. DiAnn Papp
Mr. William T. Parry
Dr. and Mrs. Maurie Pelto
Mr. John Perenchio
Mr. and Mrs. William C. Perlitz
Mr. and Mrs. Cary R. Perlman
Ms. Ruth W. Perotin
Mr. and Mrs. J. Douglas Pfeiffer
Mr. William J. Phelan
Mr. Rob Philippe
Philippon Team
Mr. John B. Phillips
Ms. Jan Rymer Pickens
Mr. James R. Pitts
Mr. S. Daniel Ponce
Dr. Robert H. Potts, Jr.
Mr. and Mrs. Paul E. Price
Mr. James A. Progin and
Ms. Judy Holmes
Mr. and Mrs. John Purchase
Mr. and Mrs. Christopher Purrington
Mr. John Quinlan
Mr. and Mrs. Merrill L. Quivey
Mr. Osvaldo Ramos
Mr. Carl Rand
Mr. and Mrs. Gary B. Rappaport
Mr. and Mrs. Ronald Rasnic
Ms. Beverly B. Rauch
Mr. Scott Rella
Mr. and Mrs. Eric Resnick
Mr. and Mrs. Michael H. Rich
Mr. Daniel J. Riehl
Mr. Ray H. Riley
Mr. Manuel A. Rivera Raba
Mr. and Mrs. Wayne A. Robins
Ms. Pamela K. Roehl
Mr. Daniel G. Roig
Ms. Angela Romagosa
Mr. and Mrs. Neil F. Rosser
Mr. John F. Ruggles
Mr. and Mrs. Stanley Rumbough, Jr.
Mr. and Mrs. Thomas L. Russell
Mr. James T. Ryan
Mr. and Mrs. Phillip K. Ryan
Mr. Lee K. Sadrin
Ms. Jolanthe Saks
Mr. and Mrs. Donald Salanty
Mr. and Mrs. Peter F. Sampson
Mr. and Mrs. Steve Sanger
Mr. Tom Saunders
Mr. and Mrs. William D. Schaeffer
Mr. and Mrs. Ken Schanzer
Dr. David Schneider
Mr. William J. Schneiderman
Mr. William E. Schulz
Mrs. Susie Sheridan
Mr. and Mrs. Jeffrey J. Shuster
Dr. David Silken and Dr. Maura Levine
Mr. Richard J. Silverman
Mr. Chuck Simmons
Ms. Viki L. Simmons
Mr. and Mrs. Virgil S. Simon
Mr. Harvey Simpson
Mr. Howard F. Sklar
Mr. and Mrs. Alborne L. Slider
Mr. Edmond W. Smathers
Mr. and Mrs. James S. Smith
Ms. Pam Smith
Ms. Barbara A. Sosaya
Mr. James L. Spiker
Mr. and Mrs. Terry S. Stanford
Dr. and Mrs. Bob Stanton
Mr. and Mrs. Stephen M. Stay
Mr. and Mrs. Daniel W. Stock
Mr. John R. Stokley
Mr. and Mrs. John B. Stone
Mr. and Mrs. Dale Stortz
Dr. John A. Strache
Mr. and Mrs. Eric Strauch
Mr. and Mrs. B. A. Street
Ms. Elizabeth Strong
Mr. and Mrs. Bruce C. Stuart
Mr. Robert L. Stubing
Mr. and Mrs. Patrick J. Sullivan
Mr. and Mrs. Hjalmar S. Sundin
Mr. and Mrs. Karl Swann
Mr. and Mrs. Dominick A. Taddionio
Mr. and Mrs. David S. Tamminga
Ms. Kyra M. Taylor
Mr. Matthew Teeters
Mr. and Mrs. Ronald J. Tenbensel
Mr. Stephen M. Tenney
Mr. Christian Thomas
Mr. and Mrs. Robert E. Thompson
The Tinbeg Family
Mr. Alan R. Titus
Mr. and Mrs. Brett Tolly
Ms. Eleanor Torre
Mr. and Mrs. Mark Train
Mr. and Mrs. Thomas Traylor
Mr. William B. Tutt
Mr. Harold and Mrs. Debbie Tyber
Over the years, the Institute has been privileged to receive generous and thoughtful gifts from friends and supporters who remembered the Institute in their estate plans. In fact, many of our friends—strong believers and supporters of our work today—want to continue their support after their lifetimes. Through the creation of bequests, charitable trusts, and other creative gifts that benefit both our donors and the Institute, our supporters have become visible partners with us in our mission to keep people physically active through orthopaedic research and education in arthritis, healing, rehabilitation, and injury prevention.

To honor and thank these friends, the Founders’ Legacy Society was created to recognize those individuals who have invested not only in our tomorrow, but also in the health and vitality of tomorrow’s generations.

Our future in accomplishing great strides, from understanding degenerative joint disease, joint biomechanics, and osteoarthritis to providing education and training programs, is ensured by the vision and forethought of friends and supporters who include us in their estate plans. The Institute’s planned giving program was established to help donors explore a variety of ways to remember the Institute. We are most grateful to these individuals for their support in becoming founding members of the Founders’ Legacy Society:

**THE FOUNDERS’ LEGACY SOCIETY**

**MR. AND MRS. ROBERT M. FISHER**
**MS. MARGO GARMANS**
**MR. ALBERT HARTNAGLE**
**MR. AND MRS. JOHN MCMURTRY**
**MR. AND MRS. EDWARD J. OSMERS**
**MR. AL PERKINS**
**MR. ROBERT E. REPP**
**MR. WARREN SHERIDAN**
VISIONARIES

Medical research and education programs are supported by gifts to the Institute’s annual fund. Visionaries are those patients and their families, trustees, staff, corporations, and foundations whose lifetime cumulative giving totals $10,000 or more.

Donors at this level support many programs, including the Institute’s research to validate the success of new treatments for degenerative arthritis and identify factors that influence treatment success. For example, as youth sports injuries rise to epidemic proportions due to early specialization and extensive practicing, the Institute is researching conditions and injuries commonly associated with specific sports, such as hip impingement in young hockey players, to determine how to prevent and treat them. Injuries in growing children may cause unforeseen complications during adulthood such as an early onset of osteoarthritis.

Visionaries’ gifts ensure the advancement of evidence-based medical research, joint preservation research, science, and care, as well as the education of physicians for the future. We extend our gratitude to these individuals for their lifetime of support:

Aarhus University Hospital Foundation for Sports Traumatology
Mr. and Mrs. Edward C. Abraham
Mr. and Mrs. Don Ackerman
Aetna Foundation
Aircast, Inc.
Alpine Bank
Allegheny & Western Energy Corp.
Mr. and Mrs. John Alfon
The Alix Foundation
Mr. Herbert Allen
Mr. and Mrs. James C. Allen
American Orthopaedic Foot & Ankle Society, Inc.
American Airlines
American Express
American Academy of Orthopaedic Surgeons
Mr. and Mrs. Harold Anderson
Mr. and Mrs. John M. Angelo
Anonymous
Mr. and Mrs. David B. Arnold, Jr.
Mr. and Mrs. Adam Aron
Arthrex, Inc.
ArthroCare Corporation
His Royal Highness Bin Majid Abdul Aziz
Butterfield & Robinson
Mr. John M. Bader
Mr. Thomas H. Bailey
Mr. and Mrs. Paul Baker
Mr. Foster Bam
Mr. and Mrs. Herbert Bank
Helen S. & Merrill L. Bank Foundation, Inc.
Ms. Susan Barnett
Ms. Nancy Bechtle
Mr. and Mrs. Melvyn Bergstein
Mr. and Mrs. Howard Berkowitz
Biomet, Inc.
Bionicare Medical Technologies, Inc.
Ms. Lyndall Boal
Mr. George Boedecker
Mr. and Mrs. John A. Boll
Mr. and Mrs. Erik Borgen
Dr. and Mrs. Martin Boublik
Mr. and Mrs. Robert A. Bourne
Dr. Dennis D. Bowman
Mr. Jack Boyle, III
W.L. Lyons Brown Charitable Foundation, Inc.
Ms. Maria Brabb
Lord Brabourne
Mr. and Mrs. Bernad A. Bridgewater, Jr.
Mr. and Mrs. Peter L. Briger, Jr.
Mr. and Mrs. Michael C. Brooks
Red Bull North America, Inc.
Mr. and Mrs. Preston Butcher
Mr. Richard T. Butera
Dr. and Mrs. R. David Calvo
Mr. and Mrs. James R. Cargill
Mr. and Mrs. Russell L. Carson
Mr. and Mrs. Jim Castillo
Mr. and Mrs. Pedro Ceresola
Mr. Lim Chee-Wah
Mr. Jim Cimino
The Cliffs Communities
Dr. and Mrs. Thomas Clanton

Ms. Caryn Clayman
Mr. Bruce R. Cohn
Mr. and Mrs. Jonathan Coon
Dr. and Mrs. Kenneth H. Cooper
Dr. Donald S. Corenman
Ms. Joanne Corzine
The James M. Cox, Jr. Foundation
Mr. Archibald Cox, Jr.
Henry Crown and Company
Arie and Ida Crown Memorial
Mr. James S. Crown
Darwin Partners
Mr. Douglas N. Daft
Mr. Franco D’Agostino and Ms. Alicia Ziegert
Mr. Norris Darrell, Jr.
Mr. and Mrs. Ronald V. Davis
General and Mrs. Peter Dawkins
DePuy Mitek
Mr. and Mrs. Michael S. Dell
Mr. and Mrs. Claiborne P. Deming
Diversified Radiology
Mr. and Mrs. Thomas C. Dillenberg
Dr. and Mrs. Charles J. Dillman
Mr. Neil and Dr. Michelle Donaldson
Mr. and Mrs. Edward C. Dowling
EBI Medical Systems
Mr. and Mrs. John M. Egan
Mr. J. Michael Egan
Mr. and Mrs. Phillip D. Elder
Mr. and Mrs. Henry B. Ellis
Dr. and Mrs. Steve Ellstrom
Encore
Mr. and Mrs. Robert Engleby
Mr. and Mrs. Floyd English
Mr. and Mrs. William T. Esrey
Dr. John A. Feagin and Mrs. Marty Head
Mr. Jack Ferguson and Mrs. Veronica Slajer
Mr. and Mrs. Chad Fleischer
Mr. and Mrs. Lawrence Flinn, Jr.
Dr. Sue Fogel
Mrs. Peggy Fossett
Mr. Nic Frangos
Frito Lay, Inc.
Mr. and Mrs. James Gaither
Mr. and Mrs. Robert Galvin
Genzyme Biosurgery
Mr. and Mrs. Bradley Ghent
Mr. and Mrs. Milledge A. Hart, III
Mr. and Mrs. Steve Haber
Mr. and Mrs. Ron Haan
Mr. and Mrs. Soren Lind
Mr. and Mrs. Robert Lemos
Mr. Jorge Paulo Lemann
Mr. and Mrs. Robert Lemos
Mr. and Mrs. S. Robert Levine
The Liniger Family Foundation
Mr. and Mrs. Soren Lind
Linvatec
Mr. and Mrs. Walter Loewenstern
Mr. and Mrs. Kent Logan
Highline Sports & Entertainment
Mr. and Mrs. Stephen Hilbert
Ms. Lyda Hill
Audrey Hillman Fisher Foundation
Mr. Hayne Hipp
Dr. and Mrs. Russell Hirsch
Hilliard Family Fund
Dr. Charles P. Ho
Hockey Equipment Certification Council
Mr. and Mrs. David C. Hoff
Mr. and Mrs. Preston Hotchkis
Mr. and Mrs. Charles Huether
Hugoton Foundation
Mr. and Mrs. George H. Hume
Mr. and Mrs. Walter Hussman
Mr. and Mrs. Roy Igersheim
Dr. and Mrs. Frederick Ilfeld
Mr. and Mrs. Michael Immel
Admiral and Mrs. Bobby Inman
Fred & Eli Iselin Foundation
Mr. and Mrs. Douglas E. Jackson
Mr. Brice Jackson
Ms. Mary H. Jaffe
Mr. and Mrs. John V. Jaggers
Mr. and Mrs. Bill Jensen
Mr. and Mrs. Charles Johnson
Mr. and Mrs. Michael O. Johnson
G.E. Johnson Construction Company, Inc.
Mr. and Mrs. Evan Jones
Mr. and Mrs. John W. Jordan, II
Dr. and Mrs. Jay Kaiser
Dr. and Mrs. David Karli
Ms. Beth Kasser
Key Bank
Mr. and Mrs. Peter R. Kellogg
Mr. John P. Kelly
Mrs. Connie Kemmerer
Mr. and Mrs. Jack Kemp
Key Foundation
Steven and Michele Kirsch Foundation
Charles G. Koch Charitable Foundation
Mr. and Mrs. Henry Kravis
Mr. and Mrs. Bob Krohn
Anthony H. Kruse Foundation
KSL Capital Partners
Mr. and Mrs. J.B. Ladd
Mary Lanning Memorial Hospital
Dr. and Mrs. Robert F. LaPrade
Mr. Jorge Paulo Lemann
Mr. and Mrs. Robert Lemos
Mr. and Mrs. S. Robert Levine
The Liniger Family Foundation
Mr. and Mrs. Soren Lind
Linvatec
Mr. and Mrs. Walter Loewenstern
Mr. and Mrs. Kent Logan
Mr. and Mrs. Frank J. Lynch
Mr. Buck and Mrs. Laura Lee Lyon
Maher Foundation
The Mailman Foundation, Inc.
Ernst & Wilma Martens Foundation
Mr. and Mrs. Douglas Mackenzie
Mr. and Mrs. John Madden, III
Mr. David Maher
Mr. and Mrs. John Maher
Mr. Theodore Mallon
Mr. John Manner
The House of Remy Martin
Mr. Herbert E. Marks
Jack C. Massey Foundation
Mrs. Alexandra Mastriana-Solal
Mr. and Mrs. Roy May
Mr. and Mrs. Frederick R. Mayer
Mr. and Mrs. David Mazer
Mr. and Mrs. Charles McAdam
Mr. and Mrs. John P. McBride
The McCormack Foundation
Mrs. Betsy McCormack
Mr. Rick McGarrey
Mr. and Mrs. Arch McGill
Mr. and Mrs. John McMillian
Medequip, Inc.
Meadowood Napa Valley
Messner Reeves, LLP
MedSynergies-Surgical Division
Mr. and Mrs. Eugene Mercy, Jr.
Mr. Michael A. Merriman
Mr. and Mrs. George Middellmas
The Minneapolis Foundation
Mr. and Mrs. Ron Miller
Dr. and Mrs. Peter J. Millett
MJP Innovations
Mr. and Mrs. Don H. Nelson
Mr. and Mrs. Ronald A. Nelson
Ms. Cindy L. Nelson
Mr. and Mrs. Paul L. Newman
Mr. and Mrs. Tradd Newton
NFL Charities
Stavros S. Niarchos Foundation
Nippon Sigmax
Mr. and Mrs. Larry Nisonoff
Mr. and Mrs. Michael Noell
Dr. and Mrs. Thomas Noonan
Mr. Greg Norman
Mr. Robert Norris
Norwegian Health South-East (Helse Sør-Øst) Regional Health Authority
Ms. Mary Noyes
Össur Americas, Inc.
Mr. Edward D. O’Brien
Mr. and Mrs. John Oltman
Opus Medical, Inc.
Opedix Labs
Oratec Interventions, Inc.
Ortho Supply, Inc.
ORP Hanger
Mr. and Mrs. Paul Oreffice
Ormed GmbH & Co. KG
Ortholink Physicians Corp.
Ortho Rehab
OrthoLogic
Mr. John Osterweis
Mr. and Mrs. Preston S. Parish
Ms. Uta Ortíz Patino
Pepsi Cola
JP’s Peace, Love & Happiness Foundation
Mr. Nelson Peltz
Mr. and Mrs. Bob Penkhus
Perry Golf
Mr. Alan W. Perkins
The Perot Foundation
Mr. James Petersen, Sr.
Pfizer, Inc.
Dr. and Mrs. Marc Philippon
Philips Medical
Mr. and Mrs. Addison Piper
Piper Jaffray & Co.
Dr. and Mrs. Kevin D. Plancher
Mrs. Andrew Pollet
Mr. David S. Pottruck
Mr. and Mrs. Jay A. Precourt
Mr. Michael Price
Mr. Marc Prisant
Mr. and Mrs. Tom Quinn
The Rainforth Foundation
Mr. and Mrs. Paul Raether
Ms. Karen Rainwater
Mr. and Mrs. Felix D. Rappaport
Mr. and Mrs. George Rathman
Mr. and Mrs. Steven Read
ReGen Biologics
RE/MAX International, Inc.
RIG Foundation
The Robbins Foundation
Mr. George R. Roberts
Mr. and Mrs. Sanford Robertson
Mr. and Mrs. Wayne A. Robins
Mr. and Mrs. Arthur Rock
Dr. William Rodkey
Mr. and Mrs. Michael D. Rose
Mr. and Mrs. Gary S. Rosenbach
Mrs. Nancy H. Russell
Mr. Ronald Alvarez and Ms. Alice Ruth
Mr. and Mrs. Larry W. Ruvo
Mr. Jack Saltz
Saucony, Inc.
Mr. and Mrs. Kenneth T. Schiciano
Mr. Craig Schiffer
Dr. and Mrs. Theodore Schlegel
Mr. and Mrs. Paul Schmidt
Mr. William J. Schneiderman
Mr. and Mrs. Charles Schwab
Mr. Edward D. Scott
Seabourn Cruise Line
Julius Seaman Family Foundation
Mr. and Mrs. Brad Seaman
Mr. and Mrs. Gordon I. Segal
Ms. Monica Seles
Shark Shootout Charities
Mr. and Mrs. O.B. Shelburne
Mr. and Mrs. Stanley S. Shuman
Siemens Medical Solutions USA
Dr. and Mrs. James F. Silliman
Mr. and Mrs. Brian Simmons
Mr. and Mrs. John Simon
Mr. and Mrs. Gary Sitzmann
Ms. Damaris Skouras
Mr. and Mrs. Rod Slifer
Smith & Nephew Endoscopy
Small Bone Innovations
Mr. Michael Byram and Mrs. Ann B. Smead
Mr. Michael Smith
Mr. Thomas W. Smith
Mr. and Mrs. Jack Smith
The Sonnenalp of Vail Foundation
Sonoma Orthopedic Products
Mr. and Mrs. Erich Spangenberg
Mr. and Mrs. Howard Specter
Spectra Energy Foundation
Steadman Philippon Research Institute
Stryker Trauma
Dr. and Mrs. J. R. Steadman
The Steadman Clinic
Steadman Family Foundation
Steadman Hawkins Clinic Denver
Mr. and Mrs. Lyon Steadman
Mr. and Mrs. Charles L. Stephens
Dr. William I. Sterett
Stocker & Yale, Inc.
Mr. Bram Stolk
Mr. Hans Storr
Mr. James E. Stowers, III
Stryker Imaging
Surgical Dynamics, Inc.
Synthes USA Products, LLC
Mr. and Mrs. Mark Taché
Mr. Oscar L. Tang and Dr. Agnes Hsu-Tang
Mr. Vernon Taylor, Jr.
Mr. and Mrs. Richard F. Teerlink
Mr. Tim Tenney
Mr. and Mrs. Fred Teshinsky
Mr. and Mrs. James Tiamo
Mr. and Mrs. William R. Timken
Mr. and Mrs. John C. Tlapek
Mr. and Mrs. John Tolleson
Mr. and Mrs. Stewart Turley
U.S. Ortho Corporation
University of Pittsburgh
Dr. and Mrs. Luis H. Urrea, II
US Bank
Vail Resorts
Vail Valley Foundation
Vail Valley Medical Center
Mr. Jack Van Valkenburgh
Mr. and Mrs. Leo A. Vecellio, Jr.
Verizon Communications, Inc.
Mr. and Mrs. Arthur W. Vietze
Dr. Randy Viola
Mr. and Mrs. George Vonderlinden
The Williams Family Foundation
Mr. and Mrs. Norm Waite
Mrs. Alice Walton
Ms. Lucinda Watson
Mr. Mark E. Watson, Jr.
Mrs. Olive C. Watson
Ms. Valerie Weber
Mr. and Mrs. Stephen D. Wehrle
Mr. and Mrs. Patrick Welsh
Dr. and Mrs. Wayne Wenzel
Mr. and Mrs. George Wiegens
Mr. Rodney Wimmer
Ms. Mary Wolf
Dr. and Mrs. Savio L.Y. Woo
Wyeth Pharmaceuticals
Mr. Craig Yates, Sr.
Zimmer, Inc.
ALEXANDRA MASTRIANA-SOLAL TAKES THE STEADMAN PHILIPPON MESSAGE TO THE TOP OF KILIMANJARO

By Jim Brown

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 ‘cry-baby,’ 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. Richard 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 StairMaster 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 freestanding 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,
competed 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.”

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-of-a-kind SPRI flag left for Tanzania on February 19.

SHE DID IT
Alexandra officially arrived at the top of Kilimanjaro at 12:10 p.m. 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. 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.
Corporate support helps fund our Institute’s research and education programs in Vail, Colorado, and at six university sites. Corporate funding has increased as we have continued to deliver efficiencies in overhead, allowing us to direct more dollars into research. This year, 77 cents of every dollar raised went into research. The Institute is grateful for the generous support of our corporate donors. In 2012, we received $2,700,044 in corporate support. This work will benefit patients and physicians for generations to come.

Alpine Bank
American Orthopaedic Foot & Ankle Society, Inc.
Arthrex, Inc.
ArthroCare Corporation
Biomet, Inc.
DRM Medical
G.E. Johnson Construction Company, Inc.
Goldman, Sachs & Co.
Henry Crown and Company
KSL Capital Partners
Linvatec
Medequip, Inc.
MedSynergies-Surgical Division
MJP Innovations
Newton Running
Norwegian Health South-East (Helse Sør-Øst) Regional Health Authority
Opedix Labs
ORP Hanger
University of Oslo and Oslo Sports Trauma Research Center
Össur Americas, Inc.
Red Bull North America, Inc.
RevGen Partners
Small Bone Innovations
Smith & Nephew Endoscopy
Siemens Medical Solutions USA
Sonoma Orthopedic Products
The Steadman Clinic
Stryker Trauma
Synthes USA Products, LLC
US Bank
Vail Resorts
Vail Valley Medical Center
Verizon Communications, Inc.

FOUNDATIONS

Aarhus University Hospital Foundation
for Sports Traumatology
The James M. Cox, Jr. Foundation
Ebersol-Saint James Family Trust
The Flora Foundation
Goodwin Foundation
The Greenburg-May Foundation, Inc.
The Hellman Family Foundation
The William and Flora Hewlett Foundation
The Fred & Eli Iselin Foundation
The Liniger Family Foundation
Norwegian Health South-East (Helse Sør-Øst) Regional Health Authority
RJG Foundation
The Patricia M. and H. William Smith, Jr. Foundation
The Sonnenalp of Vail Foundation
US Ski and Snowboard Team Foundation
Vail Valley Foundation
A study of patients with knee osteoarthritis 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 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, M.P.H., Lauren Matheny, and Dr. Henry Ellis.

**Few Options for Long-Term Relief**

“Although thousands of people are diagnosed with knee osteoarthritis (OA) every year, there are few options that offer long-term 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 short-lived, lasting about six months. Other options include arthroscopy or total knee replacement (TKR).”

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 arthroscopic 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 short- and 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 of data, they found 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.”

**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 its goals are to maintain joint volume and 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 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 four 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 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.
REGENERATIVE MEDICINE RESEARCH

The purpose of the Center for Translational and Regenerative Medicine Research (CTRMR), formerly Basic Science Research, is to gain a better comprehension of factors that lead to 1) degenerative joint disease, 2) osteoarthritis, 3) improved healing of soft tissues such as ligaments, tendons, articular cartilage, and meniscus cartilage, and 4) new and untried approaches of treatment modalities.

Our emphasis is on understanding the effects of injuries and then enhancing therapies at the joint, tissue, and even cellular levels. We perform in vitro and translational (animal) studies before human use. Our ultimate goal is to regenerate, not just repair, injured tissues. That is, we focus our efforts on regenerative medicine.

The relatively new area of regenerative medicine coupled with biological enhancement of tissue healing is an exciting one that has gained global attention, especially in the areas of orthopaedic sports medicine and in the care of combat casualties from our military services. Many of the applications lend themselves to treatment of post-traumatic osteoarthritis. There are many new and innovative techniques under investigation by scientists around the world, including stem cells, blood products, and synthetic materials that exploit new sciences such as nanotechnology and electrospinning. One of the broad goals of this work can be stated simply as joint preservation.

ACCOMPLISHMENTS

• Ten publications in quality peer-reviewed journals and books.
• Sixteen presentations in six different countries.
• Served on two major international research committees.
• Served on the editorial review board of a major knee journal.
• Served as a peer reviewer for four major orthopaedic sports medicine journals.
• Completed important studies and/or published articles on adult autologous stem cells, meniscus regeneration, the microfracture technique and rehabilitation, and the use and dosage of platelet-rich plasma (PRP).

PUBLICATIONS

In 2012, the department had 10 publications in high quality journals and leading textbooks, including:

• Cartilage
• Sports Medicine and Arthroscopy Review
• Knee Surgery, Sports Traumatology, Arthroscopy

GRANTS

No outside grants or patents were obtained in 2012. Philanthropic donations were solicited for and used specifically for some of the CTRMR research studies.
COLLABORATIVE EFFORTS
CTRMR continued its very strong and extremely well established collaboration with Colorado State University (CSU). Specifically, we worked closely on many projects with the CSU Orthopaedic Research Center (ORC) under the direction of Dr. Wayne McIlwraith and his deputy, Dr. David Frisbie.

Our collaborations have been ongoing for more than 15 years, and our joint efforts have led to many publications and presentations on the subject of cartilage repair and resurfacing. Several of these studies have influenced the way that microfracture is performed, and other studies have validated the postoperative rehabilitation protocols that have been developed by Dr. Steadman. This collaboration with the CSU ORC is truly invaluable to CTRMR and to SPRI as an institute.

We of course also collaborate with the Steadman Clinic attending staff and fellows. This collaboration is always fruitful and helps us assure that our work is clinically focused.

PROJECTIONS
The future looks very bright for regenerative medicine, and we believe that the Center for Translational and Regenerative Medicine Research can truly make a difference in this area of biomedical and orthopaedic sports medicine research. Some of the areas we will continue to pursue include:

- Functional tissue engineering
- Synthetic matrices
- Gene therapy
- Cellular therapy
- Stem cells, circulating progenitor cells, and others
- Platelet-rich plasma (PRP)
- Mechanisms of action, dose optimization, etc.

All of these future projects focus on improved tissue healing and regeneration. In other words, we believe that the discipline of regenerative medicine is not only the future, but it is also right now.
A study conducted at the Steadman Philippon Research Institute by Marc Philippon, M.D., and his colleagues was the lead article in the August 2013 issue of The American Journal of Sports Medicine.

The Journal is the official publication of the American Orthopedic Society for Sports Medicine (AOSSM) and in 2012 was ranked as the highest among 157 scientific journals in terms of impact on the orthopaedic and sports medicine communities.

The title of the article is “Acetabular Labral Reconstruction with Iliotibial Band Autograft: Outcome and Survivorship Analysis at Minimum Three Years Follow-up.”

Injuries to the acetabular labrum (cup-shaped socket) can be caused by impingement (mechanical disorder), dysplasia (abnormal formation), and acute trauma.

The purpose of the study was to evaluate the results of a technique developed at SPRI in which the labrum of the hip joint is reconstructed arthroscopically using a segment of the patient's own iliotibial band. The band is fibrous tissue that extends from the upper portion of the hip to the tibia (one of the two bones in the lower leg).

The procedure was performed on 76 hips in 75 patients over a four-year period, and patients’ progress was monitored for between 36 and 70 months after the operation.

In 19 cases, the patients required total hip arthroplasty at an average of two years and four months. However, the average hip survival time without arthroplasty was nearly five years (59.1 months). Outcomes were measured using three tests performed before the procedure and again at a minimum of three years after surgery.

Significant increases were reported on the Modified Harris Hip Score, the Hip Outcome Score, and in patient satisfaction. The 76 percent of patients who did not require total hip arthroplasty reported improved function in all, as well as high satisfaction with the outcome. The research also revealed that joint space of 2 mm or less is a contraindication for the procedure.

According to Dr. Philippon, “This is an example of an orthopaedic procedure developed in Vail and validated by SPRI. The implications of this new procedure will be to improve patient care worldwide, which reflects our mission.”

Dr. Philippon's co-authors were Mark R. Geyer, M.D., Karen Briggs, M.P.H., and Theodore Fagrelius.
To better define its mission, the Department of Clinical Research changed its name in 2012. Collecting outcomes data for 20 years on orthopaedic procedures performed at the Steadman Clinic led to the new name, Center for Outcomes-Based Orthopaedic Research (COOR). Outcomes research has been defined as the study of the end results of medical treatment, which is intended to provide scientific evidence to support patient and physician decisions regarding care.

Our outcomes research is based on physician/patient assessment of improvement of function and quality of life, as well as patient satisfaction. Outcomes research provides a tool to link the patients’ perspective and the effectiveness of health treatment, and will result in increased participation of patients in decision-making about the kind of care that they want. Our goal is to learn from patients and to validate treatment protocols in an effort to improve the quality of health care.

With health care reform, outcomes have taken center stage. Outcomes provide the tool to help address concerns over how the health care dollar is spent and the results of that expenditure. For example, if a patient needs an ACL reconstruction and one doctor’s data shows that 60 percent of his or her patients need another surgery within one year, and another doctor’s data shows only 10 percent of his patients need another surgery within the same time period, both patients and payers would select the second doctor. This type of information will be important to policy-makers, payers, and patients as they increasingly seek information about treatments and innovations.

The key to successful analysis of outcomes is effective management of patient information. In 2011–2012, SPORT.DR was developed at SPRI. This program provides the ability to collect data using tablets, iPads, and email. Not only does this decrease the number of questionnaires we send out, but it also provides higher quality data. The data collection instruments can now require that all fields be complete, so the prevalence of missing data has greatly decreased. Doctors can get weekly reports on patient outcomes and in 2013, the patient report card will be developed to show each patient his or her progress.

KNEE STUDIES

Each year, approximately one million people undergo surgery to treat a meniscus tear. The meniscus root is responsible for providing stability to the meniscus by attaching it to the tibia. Damage to either of these root attachments results in an inherently unstable meniscus. If these tears are undiagnosed and left untreated, this may lead to early degenerative joint disease. A study was completed by COOR on factors associated with meniscus root tears.

Lateral meniscus root tears were 10.3 times more likely to occur with an ACL tear than medial meniscus root tears. Medial meniscus root tears were 5.8 times more likely to occur with a chondral defect of the knee than lateral meniscus root tears. Patients showed significant decrease in their activity levels and function preoperatively when compared to the pre-injury scores. This paper was accepted for presentation at the 2013 American Academy of Orthopaedic Surgeons annual meeting.

For more than 20 years, Dr. Steadman has been performing the healing
response procedure for proximal tears of the ACL. In 2012, a paper was published showing the outcome of the procedure in patients over 40 years of age. Patients reported stable knees and were very satisfied with the outcome of the surgery.

For young patients, the best type of ACL reconstruction has been debated. In 2012, COOR published a Level 3 study comparing autograft (self tissue) patellar tendon reconstruction to allograft (donor tissue) reconstruction in patients 18 years of age or younger. The study showed that allografts were more likely than autografts to fail in this young population, and usually within the first year. This provided more evidence for the effectiveness of the autograft reconstruction.

A focus of SPRI and COOR has always been improving function and activity in patients suffering from osteoarthritis. In 2012, several papers directed at this goal were published. A Level 3 study was published on the benefit of injections of Hylan G-F 20 and corticosteroid. The study showed that this combination not only resulted in few complications, but also showed that patients experienced pain relief and improved function matching their expectations of the treatment prior to the injection. This study was supported by a grant from Genzyme.

A study was also published showing that patients with osteoarthritis (OA) who wear an unloader brace have significantly improved quality of life.

DR. MARC PHILIPPON PUBLISHED IN ARTHROSCOPY FOR HIS STUDY ON THE ARTHROSCOPIC TREATMENT FOR FEMOROACETABULAR IMpingEMENT IN ADOLESCENTS

The purpose of this particular study was to evaluate clinical outcomes after arthroscopic treatment for femoroacetabular impingement in the adolescent and pediatric population with a minimum of two years follow-up. The mean age for the study (at the time of surgery) was 15 years. Sixty-nine percent of the patients were girls and 31 percent were boys.

The conclusions indicate that hip arthroscopy in the pediatric and adolescent population is a safe procedure, with excellent clinical outcomes at two to five years. In this study, there was an association between alpha angle and age. Clinical scores showed a significant improvement after surgery; however, 13 percent of patients did require a second procedure for capsulolabral adhesions.

Peer-reviewed publications are considered the gold standard among medical professionals. They offer critical information about how to best treat patients with certain medical problems. These studies are an important part of validating one's research, and researchers must include details about the scientific process used, as well as insight into the investigation and outcomes.

Dr. Marc Philippon is a hip specialist and an expert in treating femoroacetabular hip impingement. His study on treating the condition arthroscopically in adolescents (patients ranging in age from 11 to 16 years) was recently accepted and published in Arthroscopy.
The patients also showed a decrease in disability due to OA and improvement in knee pain. These braces, designed to unload the degenerative compartment of the knee, can be an effective treatment to decrease pain and allow patients to maintain an active lifestyle. COOR continues to study the use of this unloader brace to determine which patients are more likely to benefit from the brace. This study is supported by Össur Americas, Inc.

In 2012, COOR was honored with the Richard O’Connor Award for the best research paper by the Arthroscopy Association of North America. This Level 3 paper showed how long patients put off having a total knee replacement by undergoing a comprehensive arthroscopic treatment package developed by Dr. Steadman. This study followed patients for 10 years and will provide physicians and patients more information on arthroscopy for OA of the knee.

Since Dr. Philippon arrived, he and Dr. Steadman have been investigating the association between knee injuries and hip injuries. In 2012, the first study was published in this line of research. The study showed that patients who have a decreased femoral head-neck offset are at higher risk for ACL injury. Studies like this one are continuing to better define how injury to one joint may affect the other joint.

HIP STUDIES

Femoroacetabular impingement (FAI) refers to abnormal bony growth of the femur and acetabulum causing the two bones to impinge. This triggers damage to other parts of the hip joint. In 2012, COOR published the first mid-term report of outcomes following the treatment of chondrolabral dysfunction due to FAI in the adolescent patient. Young patients had significant improvement in their function and were very satisfied with the outcome of their treatment. Also in 2012, outcome studies with follow-up of greater than five years were started on all patients with labral repairs and patients with labral reconstructions. These studies will be complete in 2013.

This study was funded, in part, by a Smith & Nephew Research Grant.

Many active people injure their hip during activities. This includes everyone from recreational athletes to professionals. In a collaboration with McMaster University, Dr. Philippon conducted a study that reviewed the current literature to determine if athletes could return to activity level following treatment for FAI. The study showed the rate of return to sport was 92 percent.

COOR also investigated if athletes can return to play after hip arthroscopy with microfracture. This Level 3 study compared elite athletes who required microfracture to those who did not. Sports included hockey, soccer, football, baseball, tennis, and golf. There was no difference in the rate of return to play between the groups. Athletes who had microfracture were able to return to play at the same high level of competition.

In order to better understand FAI and determine ways to prevent it or limit its impact on patient function and activity, it is important to understand who has FAI but does not require surgery. In 2012, a Level 3 study was published that looked at volunteers who had no hip pain or injury. All the volunteers underwent a hip exam and MRI. Over two-thirds of the volunteers had labral tears and 24 percent had chondral defects, which were more common in older patients. Many patients had hip damage without the symptoms. In addition to this study, COOR continues its study on pee wee hockey players with no hip pain. By following these young players over multiple years, we hope to find a link between the development of FAI and labral damage. These studies bring us closer to programs that can prevent or reduce the impact FAI has on the young and mature athlete.

As with the knee, COOR also focuses on prevention of OA in the hip. It is unclear if there is an age limit for the effective use of hip arthroscopy for the treatment of OA. In 2012, COOR published a study that determined the outcomes in patients over 50 years old treated for damage caused by FAI. The study showed that 90 percent of patients with greater than 2 mm of joint space did not require a total hip replacement three years after arthroscopy. These patients also showed significant improvement in function and decreased pain. The study identified limited joint space as a contraindication for hip arthroscopy. This study was funded, in part, by a Smith & Nephew Research Grant.

A new hip procedure was described and early outcomes reported in 2012. Arthroscopic reconstruction of the ligamentum teres is used in patients who have instability of the hip despite other efforts to improve it. Although this technique may be indicated in a small population, it is critical for these patients to improve their function and return them to activities of daily living. COOR continues to validate exciting new techniques in hip arthroscopy and longer outcomes on these procedures will be available in the future.

ANKLE STUDIES

At Vail Valley Medical Center, skiing and snowboarding injuries are encountered much more frequently than at other orthopaedic centers. Commonly missed diagnoses in snowboarding injuries are subtalar and talocalcaneal injuries (injuries to joints in the foot). These injuries are relatively uncommon outside of the snowboarding population. The mechanics of snowboarding place the ankle at risk for injury, which includes damage of both the bone and cartilage.
surrounding the joint. Snowboard boots hold the feet in place, with the rear foot at 90 degrees to the axis of the board and the front foot positioned between 45 and 90 degrees. The grip placed on the heel by the boot restricts the motion at the joints of the hindfoot, forcing the body weight to impact on the heel bone.

Two patients sustained this type of injury while snowboarding (osteochondral lesions to the middle talocalcaneal articulations) and underwent MRI. Both cases showed fractures and damage to surrounding cartilage. This study aimed to bring attention to osteochondral injuries of the subtalar joint to increase timely diagnosis and improve patient outcome.

Returning to activity and function is one of the main goals of orthopaedic surgery, and it is especially important when treating athletes after an ankle injury. Along with diagnosing and treating sports-related injuries, monitoring recovery and determining readiness to return-to-play (RTP) are among the main roles of the team physician. A worldwide study revealed that the ankle was the most commonly injured site across 24 different sports. The re-injury rate in athletes is highly correlated with premature return to play.

In 2012, a study focused on establishing guidelines to allow an athlete to RTP was completed. Factors determining the readiness of an athlete to play include pain, instability, normal kinematics, balance, coordination, as well as psychological factors that may play a role. Four categories of functional testing of the ankle should include range of motion, balance and proprioception, agility, and strength. Given the high prevalence of ankle injuries in sports and the high correlation of premature RTP with re-injury, it is important to establish guidelines for clearance. This study helps to review objective measures that the physician can use to determine if an athlete can resume their activities.

**SHOULDER STUDIES**

COOR has looked at successful arthroscopic treatment in younger patients with early onset of shoulder OA with the prospect to delay the need for shoulder replacement with plastic and metal implants. In the U.S., about 53,000 people have shoulder replacement each year, but these implants only have a 10- to 15-year useful life span, so there is a need to delay replacement surgery for as long as possible. COOR published the results of patients with end-stage painful shoulder OA undergoing the comprehensive arthroscopic management (CAM) procedure developed by Dr. Millett.

The CAM surgery reduced pain, improved function, and provided reasonable short-term durability for young, active patients with advanced shoulder OA and may serve as a joint preserving alternative to replacement. Patients with less than 2 mm of joint space had a higher failure rate, but overall the study showed a survivorship rate of 85 percent at two years after surgery.

Many active people injure their shoulder during activities such as biking or snow sports, and the injuries affect everyone from the recreational athlete to the professional. Injuries to the acromioclavicular (AC) joint represent up to 12 percent of all traumatic shoulder girdle injuries. Injuries are classified from sprains (grade I-III) to severely displaced AC joints (grade III-V). While grades I and II are treated conservatively, grades IV-V usually require surgical intervention.

Although the management of type III injuries is still debatable, many publications advocate early surgical reconstruction in select high-functioning patients such as manual laborers and overhead-throwing athletes. However, surgical intervention of the AC joint is not without risk.

COOR contacted patients who had various surgical reductions of the AC joint to determine the incidence and type of complications experienced. Surgical procedures to treat disrupted AC ligaments resulted in an overall complication rate of 27.1 percent (16/59). Survivorship rate of not experiencing a complication was 86.2 percent at 12 months and 83.2 percent at 24 months. Good to excellent surgical outcomes were found in those patients who did not have a complication.

Injuries from bicycling were the most common cause of clavicle fractures (collar bone), followed by contact sports. Younger men (age 10-19 years old) are most at risk for clavicle fractures. About 40 percent of fractures to the shoulder occur in the clavicle. Non-operative treatment is standard for most midsection clavicle injuries, unless the two bone pieces are separated (displaced) from each other.

Published reports indicate improved outcomes with operative treatment that allows the bone to heal in its original position. COOR undertook a polling study to assess agreement between orthopaedic surgeons regarding their treatment preferences for clavicle fractures. Fractures were presented in a series of preoperative x-rays, and surgeons were asked if they would operate or not and then compare their choice with recent medical recommendations.

The study revealed a rather large disagreement in decision-making by the more senior shoulder surgeons versus others, but there was a very high agreement of 91 percent when comparing treatment choice with recent published medical recommendations.

**PROJECTIONS**

2012 was a record year for the Center for Outcomes-Based Orthopaedic Research. We look forward to providing more information so informed health care decisions can be made.
In the field of healthcare, peer review and publication of clinical and scientific studies certify that the absolute highest standards in the research process have been met. BioMedical Engineering scientists from the Steadman Philippon Research Institute will have 33 studies completed by year-end. These orthopaedic research studies include injury prevention, clinical observation, and assessment in all areas of orthopaedic sports medicine.

The Department of BioMedical Engineering at SPRI, a world leader in orthopaedic and sports medicine research, reports a record number of research papers in PubMed. PubMed’s database is a service of the U.S. National Library of Medicine, which provides online access to collections of peer-reviewed and accepted research studies for the medical community. For 2012, the Department of BioMedical Engineering will have 16 orthopaedic studies published, another seven papers accepted for publication, and 10 papers in peer review.

Independent, unbiased, critical assessment of medical conditions, treatments, and patient outcomes is integral to validating clinical research. SPRI’s orthopaedic research studies include injury prevention, clinical observation, and assessment in all areas of orthopaedic sports medicine. These studies certify that the absolute highest standards in conducting, recording, and reporting the research have been met. Once an orthopaedic research study is submitted to a professional journal by a research team, a peer review committee scrutinizes it, and only the best papers are accepted for publication.

The large number of SPRI studies published in a 12-month period is an extraordinary accomplishment and the highest indicator of the quality of their research.

Dr. Marc Philippon, orthopaedic hip surgeon and SPRI Board member, stated, “It is not only about the quantity, but also the quality of publications within SPRI that allow for high impact in our orthopaedic community. Our publications are accepted to the top journals.”

According to Dr. Coen Wijdicks, director of the Department of BioMedical Engineering at SPRI, “Peer-reviewed publications that incorporate relevant research studies provide a significant credible resource among peers. Because it is published in such a large forum, the result is high impact and captures a large audience.”

The Steadman Philippon Research Institute is engaged in various orthopaedic research studies throughout the year. In 2012, some of the published studies included:

- “The effects of arm elevation on the 3-dimensional acromiohumeral distance: a biplane fluoroscopy study with normative data”
- “Anatomic suture anchor versus the Broström technique for anterior talofibular ligament repair: a biomechanical comparison”
- “Femoracetabular impingement treated with PRP and bone marrow concentrate aspirate in a professional soccer player”
- “Recruitment and activity of the pectineus and piriformis muscles during hip rehabilitation exercises: an electromyography study”
- “The management of injuries to the medial side of the knee”

“Without a peer review process for medical research, there would be very little validity to published studies. It is well recognized that peer-reviewed publications have gone through vigorous peer review and represent the highest levels of scholarly work. It has always been our goal, and it will continue to be our goal, to plan to publish our orthopaedic research studies in the highest level journals starting from the point of initial design of our works,” states Dr. Robert LaPrade, chief medical research officer of the Institute.

In 2011, SPRI completed construction of its multi-million dollar, state-of-the-art laboratories and surgical skills facilities. The principal goal for these facilities is to understand the demands on joints for certain sports or motions, how injuries occur and how they can be best treated, and to offer physicians, SPRI fellows, and international research scholars the ability to practice current and new surgical techniques in a simulated operating room environment.
The Department of BioMedical Engineering is a multidisciplinary laboratory that applies quantitative, analytical, and integrative methods to the field of orthopaedic medicine. The Department includes subdisciplines of biomechanics, musculoskeletal mechanics, biomedical imaging, and orthopaedic engineering.

The staff integrates clinical care, research, and education with the resources of world-renowned medical doctors in order to improve the treatment of musculoskeletal diseases.

This focused approach is designed to maintain and enhance athletic performance, health, and quality of life for the professional, semi-professional, collegiate, high school, and recreationally active individual through an emphasis on bench-to-bedside research. The programs provided by the Department are unique and diverse, and they encompass a complete range of services for the physically active or those wishing to return to an active lifestyle after injury. Our goals are to enhance improved patient care nationally and internationally with a focus on high level research published in top-level peer-reviewed journals.

In 2012, the Department continued to pursue its theme of evolving in terms of expanding technical responsibilities of staff members and challenging areas of research. The theme of excellence was once again reflected by the number and quality of peer-reviewed publications, presentations, patents, and collaborative efforts between the Steadman Clinic and the Steadman Philippon Research Institute, as well as with institutions in the United States and other countries. Finally, the Department's theme of expectations was reinforced as it continued to meet the high standards of the scientific community and to meet the needs of patients who benefit from biomedical research conducted at SPRI.

**ACCOMPLISHMENTS**

In 2012, studies were published or presented (on podium or poster) that involved:

- Suspension devices for anterior cruciate ligament (ACL) reconstruction
- Radiographic landmarks for posterior cruciate ligament (PCL) reconstruction
- Arthroscopic anatomy of PCL
- Pressure sensor output changes in the presence of liquid exposure
- Platelet-rich plasma and bone marrow aspirate therapy for hip injuries
- Accuracy of biplane fluoroscopy for tracking knee joint movements
- Pre- and post-operative function after scapula reconstruction
- Biplane fluoroscopic study of high knee valgus
- Anatomic analysis of the meniscus
- Comparison of surgical treatments for ankle ligament repair
- Digital photography in an orthopaedic setting
- Femoroacetabular impingement in a professional soccer player
- Historical perspective of PCL bracing
- Accuracy of MRI and MRA resonance arthrogram versus arthroscopy in shoulder tendon injuries
- Management of injuries to the medial side (inside) of the knee
- Outcomes after surgical management of shoulder fractures
- Current concepts of coracoid (in the shoulder) impingement
- Recruitment and activity of specific muscles during hip rehabilitation
• Statistical shape model-based femur kinematics from biplane fluoroscopy
• Surgical technique for medial knee reconstruction
• Biplane fluoroscopy study of 3-D arm elevation on acromiohumeral distance

**Radiographic evaluation of plantar articular cartilage T2 values in sub-Tibiofemoral contact in landing recruitment and activity of muscles effects of arm elevation on acromiohumeral distances recruitment and activity of muscles during hip rehabilitation tibiofemoral contact in landing articular cartilage T2 values in sub-regions of the knee**

**Podium Presentations**
• Biomechanical comparison of techniques for ankle ligament repair
• Biomechanical analysis of rotator cuff repairs
• Arthroscopic anatomy of PCL
• Biomechanical analysis of massive rotator cuff repairs
• Effect of clavicle shortening in rotations of the shoulder complex
• Fluoroscopic assessment of femoral kinematics

**Poster Presentations**
• Computed tomographic comparison during a bone and cartilage allograft procedure
• Biomechanical analysis of the effect of arthroscopic notching during surgery for hip impingement
• Radiographic evaluation of plantar plate injury
• Radiographic landmarks in PCL reconstructions
• Biomechanical analysis of rotator cuff injuries
• Quantitative anatomic analysis of meniscus procedures
• Biomechanical analysis of massive rotator cuff repairs
• Arthroscopically pertinent anatomy of PCL
• Effects of arm elevation on acromiohumeral distances
• Recruitment and activity of muscles during hip rehabilitation
• Tibiofemoral contact in landing
• Articular cartilage T2 values in sub-regions of the knee

**PUBLICATIONS, PATENTS, GRANTS**

The Department of BioMedical Engineering of the Steadman Philippon Research Institute, strives to have a direct effect on keeping people active through research and education. One of the ways that is accomplished is by having its research published in "high impact," peer-reviewed journals, such as *Arthroscopy*, *Hand Surgery, the Journal of Orthopaedic Surgery*, *The Journal of Bone and Joint Surgery, Sport Rehabilitation*, and *The American Journal of Sports Medicine*. The publications provide credibility among peers in the scientific and medical communities and reach a large audience of readers throughout the world.

In 2012, the Department produced 21 publications and 21 abstracts, resulting in seven podium presentations, and 14 poster presentations before professional organizations such as the Orthopaedic Research Society (ORS), the American Academy of Orthopaedic Surgeons (AAOS), the American Orthopaedic Foot & Ankle Society (AOFAS), the International Society of Arthroscopy, Knee Surgery & Orthopaedic Sports Medicine (ISAKOS), and the European Society of Sports Traumatology Knee Surgery and Arthroscopy (ESSKA).

BioMedical Engineering staff members received two international awards and the Department was awarded academic and corporate grants of more than $750,000.

**COLLABORATIVE EFFORTS**

The Department collaborated with Steadman Philippon physicians J. Richard Steadman, M.D., Marc Philippon, M.D., Peter Millett, M.D., Robert LaPrade, M.D., Tom Hackett, M.D., Thomas Clanton, M.D., and Randy Viola, M.D.

Sports Medicine fellows included Tyler C. Collins, M.D., Christopher Espinosa-Ervin, M.D., Scott C. Faucett, M.D., Edmund A. Ganal, M.D., Jared T. Lee, M.D., Jeffrey J. Nepple, M.D., Jack Skendzel, M.D., Nicholas A. Viens, M.D. (Foot and Ankle fellow), and W. Sean Smith, M.D. (Imaging fellow).

International scholars from 2012 to the present were Daniel Rios, M.D., Cathrine Aga, M.D., Peter-Paul de Meijer, M.D., Frank Martetschläger, M.D., Asbjorn Aroen, M.D., Ph.D., Fernando Ferro, M.D., Bernado Crespo, M.D., Uli Speigl, M.D., and Brian Devitt, M.D.

Summer Undergraduate Research Fellowships were awarded to students from the University of Michigan, University of Iowa, Colorado State University, and Colorado College.

National collaborators included The Steadman Clinic, Colorado State University, Vail Valley Medical Center, and the American Orthopaedic Foot & Ankle Society. International collaborative research efforts were conducted with the University of Oslo, AARHUS University (Denmark), University of Queensland (Australia), IBTS (Brazil), and the Arthroscopy Association of North America.

**COMMUNITY OUTREACH**

The Department provides special guidance for young scholars in the Vail Valley area and beyond. In 2012, outreach activities included lab tours for 5th-12th grade Eagle County students, two-week high school student internships, and Vail Ski and Snowboard Academy science fair judging for high school students.

**PROJECTIONS**

The Department will continue to follow a program of research leading to measurable outcomes, collaboration with national and international institutions, and community outreach. It will also pursue its mission of advancing patient care, developing and validating innovative surgical and rehabilitation techniques, and using state-of-the-art biomedical techniques to teach advanced surgical protocols.
The Surgical Skills Laboratory is continuing to evolve and advance orthopaedics through education. In the last year we have had the opportunity to perform 144 labs, 14 sponsored by industry companies and the remaining 130 performed by our sports medicine and international fellows. We have hosted labs in all major joints of the human body, including, but not limited to, the knee, hip, shoulder, elbow, foot and ankle, and hand and wrist. The diverse opportunities significantly increase the chance for physicians and medical professionals to increase their knowledge base. We are allowing surgeons and medical professionals the opportunity to refine their skills and product training in an interactive, hands-on environment. The more advanced training we can offer, the more modernized surgeons there are in the future of medicine. Medical education is not only an important aspect to a surgeon’s future, but also to the many patients who are treated by them. As advancements in research and development occur, the ultimate goal is to benefit patients by optimizing outcomes through enhanced training.

Thank you all for the continued support. We wouldn't be the world leader in research into the causes, prevention, and treatment of orthopaedic disorders without you. You all are an integral part in helping us facilitate our mission of “Keeping People Active” and educating the worldwide orthopaedic community, one person at a time.
Imaging Research develops and evaluates noninvasive imaging techniques of the joints for the purpose of directing and monitoring clinical treatment and outcomes, and to enhance the clinical relevance of research conducted in BioMedical Engineering and other departments.

STAFF

In October 2012, the Imaging Research staff was absorbed under the umbrella of the Department of BioMedical Engineering. This change was implemented as a way to take advantage of staff member skill sets and to add additional capacity to both Imaging Research and BioMedical Engineering without duplicating efforts. Dr. Ho continues to direct Imaging Research projects, while Dr. Coen Wijdicks supervises Imaging Research personnel as part of the Department of BioMedical Engineering.

Imaging Research continues to utilize the services of an Imaging Research fellow. The fellowship program was sponsored for three years by Siemens Medical Solutions USA. The 2012–13 fellow was William Sean Smith, M.D., a board certified radiologist. Moving forward, the fellowship is now sponsored by the Ken and Anne Griffin Foundation and titled the Griffin Visiting Scholar for Clinical Sports Medicine MRI.

TECHNOLOGY

The Imaging Research data registry continued to expand in 2012, and now includes 250–300 new cases per month. New tablet-based data collection methods developed by the Center for Outcomes-Based Orthopaedic Research (COOR) have made the process less time-consuming and more efficient. Collection of data that initially included information on knee and hip patients and then shoulder patients, now also includes data on foot and ankle patients.

RESEARCH

Imaging Research extended its three-year program of screening young hockey athletes with hip injuries and expanded those screenings to include young skiers. By comparing the data collected from the two groups, the information may help identify the activities in both sports that present greater risks of injury or predisposition to certain hip abnormalities.

The department moved forward in its efforts to quantify imaging diagnoses of articular cartilage and soft tissues. The results have expanded the knowledge of biomarkers and have made the quantification process more reproducible. Imaging Research continued its collaboration with Siemens, including using phantom materials with established and more stable T1 and T2 values as standards for comparison with clinical mapping values in patients. These values provide a more sensitive determination of the health of body cartilage and tissues. The department not only has the results of imaging and biomarkers, but also has histological data of operative materials that can be compared to biomarker values.

Imaging Research is also extrapolating the mapping research techniques to examining biomarkers of tissue health in other soft tissues, such as tendons and ligaments in the shoulder’s rotator cuff and ligaments supporting the knee. Similar investigations have been approved to study the tendons of the ankle.
Imaging Research has begun to examine the role of magnetic resonance imaging (MRI) for modeling bone and soft tissues. Bone modeling has traditionally been conducted using computer tomography (CT), but the process cannot model soft tissue and it involves limited exposure to radiation. The goal is to develop bone modeling with MRI to obviate the need for CT with its inherent radiation exposure, to expand soft tissue knowledge currently limited with CT, and to combine that information with motion studies to determine the forces that affect bone and soft tissue.

**COLLABORATIVE EFFORTS**

Imaging Research is collaborating with Siemens and academic research centers throughout the United States and Europe to plan multicenter trial studies to establish biomarker mapping procedures that are consistent and reproducible. Each center would use the type of phantom materials already mentioned. Planning for the program began in 2012 and trials are expected to begin in late 2013 or early 2014.

The department continued its association with Colorado State University in obtaining histological data (microscopic structure tissue) regarding the studies of the hip.

Imaging Research also entered research collaborations with the University of Queensland and with the Commonwealth Scientific and Industrial Research Organization (CSIRO), both in Brisbane, Australia. CSIRO is Australia’s national science agency, which develops practical and personalized research and technology initiatives from the research at and in conjunction with the University of Queensland.

**PROJECTIONS**

Imaging Research will continue its efforts to advance biomarker research, with a specific goal of making the information more applicable for clinical use. Biomarker findings must become reproducible for widespread application and must be consistent from time-point to time-point, as well as from patient to patient.

The department will expand its efforts in bone and soft tissue modeling research, determining how they function together and the forces that are involved.

As new projects develop and expand, Imaging Research will work with the Department of BioMedical Engineering to take advantage of the appropriate skills of personnel in both areas. The goal is economy of scale—becoming larger in size by combining the staff of two departments, while eliminating duplication of efforts and increasing efficiency.
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 (I) receives the award from Dr. Geraldo Motta, the president of the Brazilian Society of Orthopedic Surgery.

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.

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, M.P.H., 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.

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.
NINE NEW PHYSICIANS INTRODUCED

Each year, a select group of orthopaedic surgeons is chosen from a field of more than 150 to participate in 12 months of vigorous training in the Steadman Philippon Sports Medicine Fellowship Program. SPRI’s goal is to prepare them to be leaders in the field of orthopaedic sports medicine for the remainder of their careers. Many go on to hold high-level faculty positions at top medical schools.

Fellows and visiting scholars are given a unique opportunity to perform research in their respective areas of interest, including BioMedical Engineering, Outcomes-Based Orthopaedic Research, Imaging Research, and Translational and Regenerative Medicine Research. Every 18 months after their training at SPRI, they will return with past fellows for further education and to exchange the additional knowledge they have gained since completion of fellowship training. The Institute currently maintains a network of approximately 200 fellows and visiting scholars in communities around the world who serve in academic positions at leading universities and in private practices.

The following are brief summaries of the accomplishments of this year’s class of nine SPRI fellows.
Tyler C. Collins, M.D.

Dr. Collins grew up in Colorado, where he learned to ski at the age of three. After high school, he attended the University of Virginia, played varsity baseball, and was Academic All-ACC. He graduated with high honors from the School of Engineering and Applied Science with a Bachelor of Science degree in systems engineering. From Virginia, he switched coasts and attended medical school at the University of Southern California where he was a Dean's scholar. Dr. Collins remained at USC for his residency training, where he spent the majority of his time treating the underserved population in Los Angeles. His research interests include fixation of proximal humerus fractures, needle arthroscopy of the knee, reliability and reproducibility of shoulder fracture classification systems, and objective shoulder strength after fixation of clavicle fractures.

After traveling throughout the country, Dr. Collins is thrilled to be back in Colorado and feels extremely fortunate to train at the Steadman Clinic.

Christopher Espinoza-Ervin, M.D.

Dr. Espinoza-Ervin graduated from the University of Oklahoma with a Bachelor of Science degree in microbiology. He completed his medical degree at the University of Colorado School of Medicine. While in medical school, he was awarded an NIH grant to fund research focused on the treatment of orthopaedic trauma.

During the completion of his orthopaedic surgery residency at the University of Texas Southwestern, he assisted with team coverage of high school, collegiate, and professional sports. His research focused on the treatment of lower extremity trauma, shoulder arthroscopy, and the pediatric knee. He was selected as a chief resident and honored with the Vert Mooney Award for Academic Achievement.

Scott C. Faucett, M.D., M.Sc.

Born and raised in Santa Monica, California, Dr. Faucett matriculated at Middlebury College in Vermont, where he studied economics and chemistry. As an undergraduate, he also refined his skills as a telemark skier and began to volunteer with the town’s rescue squad. By his fourth year, he was appointed to the Board of Directors and attained the rank of captain, specializing in technical and water rescue.

After graduation, he attended Dartmouth Medical School, earning a Master of Science degree in health care policy and leadership as he pursued his growing interest in orthopaedic surgery and sports medicine. Scott chose to remain at Dartmouth Hitchcock Medical Center for the opportunity to focus on health policy and his other research interests: clinical epidemiology and cost effectiveness decision analysis. Throughout his residency, he provided physician coverage for the Dartmouth varsity athletes.

Edmund “Edton” A. Ganal, M.D.

Dr. Ganal graduated magna cum laude with Revelle Provost honors from the University of California, San Diego, with a degree in biochemistry and cell biology. He was a member of Phi Beta Kappa, and played NCAA soccer. Edton volunteered on a medical mission to the Philippines before attending Tufts University School of Medicine on a Health Professional Scholarship. Dr. Ganal completed general surgery internship, then served as a battalion surgeon with the Marines. He deployed to Iraq in support of Operation Iraqi Freedom. After completing orthopaedic residency at Naval Medical Center San Diego, he was stationed at Newport, Rhode Island, where he deployed to Afghanistan for Operation Enduring Freedom and took care of combat casualties.

Jeffrey J. Nepple, M.D.

Dr. Nepple grew up in Templeton, Iowa. He graduated summa cum laude from Truman State University (Kirksville, Missouri) with a degree in mathematics. While at Truman, he played NCAA Division II basketball and was elected team co-captain his senior year. He then attended Washington University School of Medicine in St. Louis and was given the Brookings and Carter Research Award during his final year. Dr. Nepple completed his residency training at Washington University in St. Louis. During his time in St. Louis,
he was involved in team coverage of the St. Louis Rams football and Blues hockey. He also spent two weeks in Port-au-Prince, Haiti, as part of a medical mission group treating orthopaedic conditions after the earthquake. While at Washington University, his research focused on young adult hip disease and femoracetabular impingement. He also received the AOSSM NCAA Research Award in 2011 for research on knee articular cartilage disease in football players at the NFL Combine. His research efforts resulted in numerous publications and presentations. After completing his training, Dr. Nepple will return to Washington University in St. Louis.

**FOOT AND ANKLE FELLOW**

**Nicholas A. Viens, M.D.**

Dr. Viens graduated magna cum laude from Duke University, where he earned a Bachelor of Arts degree in history and membership in Phi Beta Kappa. He was awarded highest distinction in his major and the William T. Laprade Prize for the outstanding thesis in the Department of History. Dr. Viens attended the Duke University School of Medicine and furthered his interests in clinical orthopaedics and research. He completed orthopaedic surgery residency at Duke University Medical Center and was very involved with the resident selection and education processes. He was an American Orthopaedic Foot and Ankle Society Resident scholar, an American Orthopaedic Association Resident Leadership Forum nominee, and a John A. Feagin, Jr., M.D., Leadership Program Medical scholar. Dr. Viens has co-authored publications in the *Journal of Bone and Joint Surgery, Clinical Orthopaedics and Related Research, Foot and Ankle International*, the *Journal of Arthroplasty*, and the *Journal of Surgical Orthopaedic Advances*. His clinical and research interests include foot and ankle athletic and traumatic injuries, as well as treatment of arthritic conditions of the foot and ankle, including total ankle replacement.

Having grown up in Waterville, Maine, where he earned his Eagle Scout and was active in sports and camping, Dr. Viens is looking forward to spending a year in the mountains and enjoying the snow with his wife, Lindsey, and son, Henry.

**SPORTS MEDICINE IMAGING FELLOW**

**W. Sean Smith, M.D.**

Dr. W. Sean Smith is a graduate of Xavier University and the University of Cincinnati College of Medicine, where he was on a US Navy Health Professions Scholarship. His internship was at the University of Chicago Hospitals and Clinics (1984), which was followed by three years active duty in the medical clinic at Willow Grove Naval Air Station in Willow Grove, Pennsylvania. He completed his radiology residency at the National Naval Medical Center in Bethesda, Maryland (1991), and then spent three more years on active duty as the head of the Department of Radiology at the US Naval Hospital, Camp Lester, in Okinawa, Japan. Upon returning to the United States, he completed a combined Musculoskeletal Fellowship at the Armed Forces Institute of Pathology and the University of Maryland (1995).

The next two years were spent in Augusta, Georgia, where he was an assistant professor of radiology, and at the VA Medical Center, where he was head of the Department of Radiology. In 1997 he entered private practice with Charleston Radiologists in Charleston, South Carolina. While there, he worked closely with the local orthopaedic surgeons, especially those who served the area's high school, college, and professional sports teams.

**THANK YOU**

A special thank you to our sponsors who make the fellowship program possible. We’d like to recognize those individuals and foundations that support the entire fellowship class through the sponsorship of Academic Chairs.

Chair sponsors of the 2012–2013 Steadman Philippon fellowship class are Mr. and Mrs. Lawrence Flinn, Mr. and Mrs. Brian P. Simmons, Mr. and Mrs. Peter Kellogg, Mr. and Mrs. Al Perkins, and Mr. and Mrs. Steven Read.

Fellowship Benefactors fund the research of one fellow for one year. Each benefactor is assigned a fellow who provides written reports and updates of his or her work. We extend our gratitude to the following individuals for their generous support: Mr. and Mrs. Milledge Hart, the Fred and Elli Iselin Foundation, Mr. and Mrs. Jay Precourt, and Mr. and Mrs. Stewart Turley.
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.”

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.
I awake rested. I can finally sleep well at altitude. Our house is always warm because of the baby. Getting up at 6:00 a.m. is no longer such a hardship. I suppose I’m used to it. Spring is here at last, so I’m back on the bike. I enjoy the solitude of cycling in the morning. The exercise wakes me up. The journey is downhill through five miles of beautiful mountain scenery. The Steadman Clinic is located in the village at the foot of a vast ski resort. It’s a small hospital with a big reputation, but is surprisingly modest in appearance.

Today is Monday. I make my way down to the laboratory and change into scrubs. We have testing today, so I can get away with it. The week starts with Grand Rounds. We are privileged to have some outstanding guest speakers. This morning, Dr. Brian Cole delivers an outstanding lecture on the state of the art treatment of cartilage defects of the knee. He’s an extremely impressive and accomplished individual, and also very personable. I am charged with the responsibility of leading him on a tour of the BioMedical Engineering laboratory.

Our first stop is the Biomotion Laboratory, in the basement of the parking structure. The large room houses a Vicon motion capture system, force plates, and bi-planar fluoroscopy, which are all used to analyze neuromuscular performance following surgical intervention. Our next visit is to the Surgical Skills Laboratory, where I spend the majority of my time. This area is remarkable and is equipped with a vast array of instruments and equipment found in the operating room. We have fantastic access to fresh frozen cadavers to perform surgery and carry out anatomical dissections, which is a great perk of the job.

Just next-door is the Biomechanical Testing Laboratory. The robot assumes center stage here. Today, we are testing a posterior cruciate ligament (PCL) reconstruction of the knee, so everything has already been set up. The robot is a very sophisticated piece of equipment that permits the analysis of knee kinematics following ligament reconstruction by placing the joint through a full range of motion, while applying loads to mimic normal physiological stresses. My role is to carry out the surgery. This can be challenging, as the knee is inverted and mounted upside down to facilitate testing.

In the far corner of the room there is an Instron machine, which we use to test the pull-out strength of the fixation. The final piece of equipment is the Microscribe, which is essentially a three-dimensional ruler used to quantify the location of pertinent anatomical structures and which forms the foundation of all our biomechanical studies. My main project this year has been to identify the arthroscopically relevant anatomy of the hip.

There is a wonderful atmosphere in the laboratory with a constant stream of music playing in the background. I hardly recognize any of it. I work very closely with engineers, research assistants, and medical students, who are mostly in their late twenties. We finish the tour in the conference room, where the weekly BioMedical Engineering meeting has just convened. Dr. Robert
LaPrade, the director of the international scholar program and an expert in multiligamentous knee reconstruction, chairs the meeting. We discuss our ongoing projects and provide updates on our progress. He is a prodigious researcher and is very involved in our studies, maintaining a regular presence in the laboratory. The meeting is short today. I return to the laboratory to start testing.

Testing days can be long. Thankfully, we have changed our testing protocol to perform the surgical reconstruction at the beginning of the day. In our previous project, the reconstruction was the final component of our study, so we frequently operated late into the evening. Max, a third year medical student from Wisconsin, assists me during the procedure. The double bundle PCL reconstruction goes well. We've done over 40 now, so we're getting quicker. We are using a new jig today, which involves a tricky set up. We finally get it to work and reward ourselves with a coffee. During the ski season, we would often go out for a quick ski over lunch. Today, I turn my attention to completing a manuscript I've been working on. I like to stay close to the laboratory just in case there are any problems.

I meet my mentor, Dr. John Feagin, for lunch. He is, without doubt, the most interesting person I have come across during my fellowship here. The founder of the ACL study group, he is regarded as one of the forefathers of sports medicine in the United States. He retired a number of years ago but stays involved in an advisory capacity. In the late 1960s, as a medical student, he visited the Rotunda hospital in Dublin for eight weeks and has maintained a fond interest in Ireland since. We are working on a book chapter together, which is a great honor. Being of Irish heritage, he is a wonderful storyteller and recounts fascinating tales of his experience working with such orthopaedic luminaries as John Charnley and Bernhard Georg Weber. Dr. Feagin runs a monthly 'classics club,' where we discuss a variety of seminal articles that influenced the practice of sports surgery. He is very generous with his time and I leave every meeting more informed and better for the experience.

There is an add-on case in the operating room this afternoon, which Dr. LaPrade has invited me to observe. He is performing an ACL, PCL, and posterolateral corner reconstruction, which is typical of the injuries he treats. He is a fine surgeon, and credits his ability to perform such complex surgery with excellent results to his strong foundation in clinical anatomy. He is a quick, decisive, and efficient operator. He chooses his tunnel positions with the confidence of a surgeon who has done it hundreds of times. He makes it look easy. He is a busy surgeon, who performs approximately 400 - 500 cases a year, which are comprised mostly of complex soft tissue reconstructions, meniscal transplants, or the treatment of cartilage defects. The ski slopes provide a conveyor belt of clients. The case takes approximately two-and-a-half hours. Prior to leaving, I arrange to simulate the reconstruction in the skills laboratory the following day with the clinical fellow.

The cycle home is uphill and requires more energy. Tachycardia and tachypnea envelop me before long. Exercising at 8,600 feet is hard work. I get home just before 6:00 p.m. My job is to give the baby a bath in the evenings. I look forward to it immensely. Our little girl, Sadie, is to celebrate her first birthday next Friday. Being on fellowship is wonderful for family life. One of the advantages of doing a research fellowship is that I don't take calls. We eat dinner together and talk about our plans for our next fellowship destination, Toronto, in July. We have really enjoyed living in Vail, but are equally excited about our next adventure. Our evenings are very laid back. We don't have a television, which was a conscious decision we made when we arrived. I read the Irish Times online every evening to stay in touch with news at home. Occasionally, we watch a movie. I find myself getting tired much earlier nowadays. I used to worry when I arrived whether I had made the right decision to come here as a research scholar. I no longer question that choice. Sleep is sound and not difficult to find.
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 research assistants in the Department of BioMedical Engineering 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. 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 great-grandfather 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 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.”
Realizing that the next generation of scientists, teachers, and physicians reside in our own communities, the Steadman Philippon Research Institute has created the Education and Public Outreach Committee (EPOC) in partnership with the Eagle County School District, and Vail Mountain School.

EPOC’s mission is to inspire and introduce the science, technology, engineering, and mathematics-oriented fields to elementary, middle, and high school students. The curriculum is directed by the scientists and physicians of SPRI, and the centerpiece of activity is the world-class research labs located at the Vail Valley Medical Center.

The team of scientists offers laboratory tours, scientific presentations, mentoring of student projects, involvement in school science fairs, and internships. “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.

THE THREE-TIERED PROGRAM INCLUDES:

5th grade tours of the SPRI laboratories.

6th, 7th, and 8th grade school visits by SPRI staff scientists including science fairs, classroom or assembly lectures, and support for science-related projects such as robotics competitions.

High school students will be invited to join the SPRI Science Club. Members will have an opportunity to meet physicians and scientists, attend orthopaedics lecture series, and participate in research projects. They will also receive a SPRI Science Club t-shirt as a member gift.

Since 2011, the EPOC program has provided lab tours for 5th–12th grade Eagle County School District and Vail Mountain School students, mentored middle school science fairs, lectured at school assemblies, and provided two summer high school student internships.

According to Coen A. Wijdicks, Ph.D., director of the Department of BioMedical Engineering, “Our young scientists hold the key to the future. These experiences allow students to exercise the resources they learn in their science classes and apply scientific methods and techniques to various topics and experiments. It is very rewarding mentoring the students and working with them on ways to better understand the dynamics behind producing an authentic experiment.”

Coen Wijdicks, Ph.D. (left) director, BioMedical Engineering, discusses the characteristics of the KUKA KR 60 Robot to fifth graders from Edwards Elementary School. (Photo credit: Angelica Wedell)
PUBLICATIONS AND PRESENTATIONS
Publications and Presentations

In 2012, principal investigators and fellows published papers in scientific and medical journals and delivered presentations to a variety of professional and lay audiences worldwide.

2012 PUBLICATIONS


Briggs KK. Using a Database in Clinical Practice. ISHA Annual Meeting, Boston, MA, September, 2012.


Clanton TO. Acute and Chronic Syndesmosis Injuries – Diagnosis and Treatment. 2012 Shanghai International Foot and Ankle Surgery Forum, Shanghai, China, April, 2012.


LaPrade RF. Clinically Relevant Anatomy and Biomechanics of the Medial Side of the Knee and Early Results of an Anatomical Reconstruction. 11th Turkish Sports Traumatology Arthroscopy and Knee Surgery Congress, Ankara, Turkey, October, 2012.


LaPrade RF. Acute and Chronic Medial Knee Injuries. VII Curso Avançado de Cirurgia do Joelho, São Paulo, Brazil, August, 2012.

LaPrade RF. Medial Knee Anatomy and Biomechanics. VII Curso Avançado de Cirurgia do Joelho, São Paulo, Brazil, August, 2012.

LaPrade RF. Acute Posterolateral Corner Knee Injuries. VII Curso Avançado de Cirurgia do Joelho, São Paulo, Brazil, August, 2012.

LaPrade RF. Chronic Posterolateral Corner Knee Injuries. VII Curso Avançado de Cirurgia do Joelho, São Paulo, Brazil, August, 2012.

LaPrade RF. Posterolateral Corner Knee Anatomy and Biomechanics. VII Curso Avançado de Cirurgia do Joelho, São Paulo, Brazil, August, 2012.


Millett PJ. Chondral Lesions & Osteoarthritis in the Glenohumeral Joint. 17th Shoulder Course, Munich, Germany, October, 2012.

Millett PJ. Multidirectional Shoulder Instability. 17th Shoulder Course, Munich, Germany, October, 2012.


Millett PJ. Iliac Crest Grafting for Large Glenoid Bone Loss. AANA Fall Course, Phoenix, AZ, November, 2012.
**Millett PJ.** Wet Lab Faculty. AANA Fall Course, Phoenix, AZ, November, 2012.


**Millett PJ.** Subcoracoid Impingement and Coracoidplasty. 31st AANA Annual Meeting, Orlando, FL, May, 2012.


**Millett PJ.** Physical Examination of the Shoulder. SPRI Academic Lecture, Vail, CO, November, 2012.


**Millett PJ.** Clavicle Fracture Cases. VuMedi In-Person Event, San Francisco, CA, November, 2012.


**Philippon MJ, Fagrelius T, Briggs K, Ho C.** Specificity and Sensitivity of MRI in Diagnosing Grade 4 Chondral Lesions in the Hip. ePoster. ISHA Annual Meeting, Boston, MA, September, 2012.


Philippon MJ. Femoroacetabular Impingement: Overview and Indications for Treatment. *30th Annual GWN Eggers Lectureship at the University of Texas Medical Branch*, Galveston, Texas, May, 2012.


Philippon MJ. Hip Instability. How Do We Assess It and How Should We Treat It? *AANA Masters Course*, Chicago, IL, July, 2012.


Philippon MJ. Post Operative Weight-Bearing. ISHA Annual Meeting, Boston, MA, September, 2012.

Philippon MJ. Hip Arthroscopy: From Diagnosis to Patient Outcome. Naval Medical Center, Norfolk, VA, June, 2012.


Philippon MJ. Hip Arthroscopy in Athletes. 3rd Finnish Hip Course. UKK Institute, Tampere, Finland, September, 2012.

Philippon MJ. Labral Reconstruction. 3rd Finnish Hip Course. UKK Institute, Tampere, Finland, September, 2012.


Philippon MJ. Outcomes Following Hip Arthroscopy. 3rd Finnish Hip Course. UKK Institute, Tampere, Finland, September, 2012.


Philippon MJ. Hip Arthroscopy: From Diagnosis to Patient Outcome. University of Toronto Grand Rounds, Toronto, Canada, April, 2012.


Rodkey WG. Promise and Challenges for Employing Stem Cell Therapies in a Very Active Clinical Practice. The Stem Cell Summit, Houston, TX, October, 2012.

Rodkey WG. Outcomes in Cartilage Surgery: What's Proven? Update in Knee Osteoarthritis in Active Patients (Clinica Las Condes), Santiago, Chile, October, 2012.

Rodkey WG. What's New in Cartilage Repair?: But NOT Proven! Update in Knee Osteoarthritis in Active Patients (Clinica Las Condes), Santiago, Chile, October, 2012.


**Awards and Recognition**

**Richard O’Connor Award**

Dr. J. Richard Steadman, founder and chairman of the Board for the Steadman Phillippon Research Institute, was recently honored with the Richard O’Connor Research Award. Dr. Steadman, internationally known for his work as an orthopaedic knee surgeon, received the award for the research paper titled “Ten-Year Survivorship Following Knee Arthroscopy in Patients with Moderate to Severe Osteoarthritis of the Knee” (see Research Update, page 28). Dr. Steadman developed this arthroscopic treatment package for patients who have osteoarthritis but are not ready to change their activity level or proceed to total knee replacement.

This paper showed that a large number of patients could delay total knee replacement for 10 years. His co-authors on the award-winning paper are Karen Briggs, M.P.H., Lauren Matheny, and Henry Ellis, M.D. Dr. Steadman’s presentation and many others were highlighted at the Arthroscopy Association of North America's 31st Annual Meeting in Orlando, Florida, May 17–18.

**Robert F. LaPrade, M.D., Ph.D., Awarded “Orthopaedic Nobel Prize”**

The American Academy of Orthopaedic Surgeons and the Orthopaedic Research and Education Foundation announced today that Robert F. LaPrade, M.D., Ph.D., has been awarded the highly competitive and prestigious 2013 OREF Clinical Research Award for his submitted paper on “Improving Outcomes for Posterolateral Knee Injuries.” Dr. LaPrade will be presenting his winning paper at the annual meetings of the Orthopaedic Research Society and the American Academy of Orthopaedic Surgeons in 2013.

“I am very humbled to have been chosen to receive this award,” said Dr. LaPrade. “I am also very grateful to my family for their support and to my many colleagues who have been an essential part of my research over the past 15 years. This award solidly validates our research strategy of defining the anatomy, developing improved means of diagnosing a problem, redefining the clinically relevant biomechanics, developing improved radiographic diagnostic measures, developing biomechanically validated ligament reconstructions, and then validating these reconstructions in patient outcomes studies. In addition to the posterolateral knee for which this award was based, we have similar ongoing programs for the medial knee and MCL, anterior cruciate ligament, and posterior cruciate ligament.”

Dr. LaPrade’s collaborators on this paper included Lars Engebretsen, M.D., Ph.D. (University of Oslo, Norway), Steinar Johansen, M.D. (University of Oslo), Chad Griffith, M.D. (University of Minnesota), Benjamin Coobs, M.D. (University of Minnesota), and Andrew Geeslin, M.D. (Western Michigan University).
Coen Wijdicks, Ph.D., director of the Department of BioMedical Engineering and senior staff scientist with the Steadman Philippon Research Institute in Vail, was recently named “Outstanding Reviewer of the Year” for 2012 by the European Society of Sports Traumatology Knee Surgery and Arthroscopy (ESSKA).

The announcement was made in the journal *Knee Surgery, Sports Traumatology, Arthroscopy (KSSTA) - The Official Journal of ESSKA.*

Dr. Wijdicks has been an instrumental contributor towards many diverse research studies affiliated with the Institute. His research focus is on translational research for current clinical needs, with an emphasis on a bench-to-bedside focus. Some of his studies include novel methods to stimulate tissue regeneration via biologic growth factors to promote healing; radiographic quantification related to common injuries of the knee and shoulder; and the development of new ligament reconstructions with biomechanical validation to optimize surgical reconstructions of common ligament injuries.

He has published over 60 peer-reviewed scientific articles in high-level journals, presented over 100 abstracts at national and international meetings, and received over 10 awards for his and colleagues’ overall excellence in research. Most notably, in June of 2010 Dr. Wijdicks was awarded the prestigious Nicola’s Foundation Young Researcher Award, which is given for the best scientific manuscript in the field of knee surgery at the bi-annual ESSKA congress.

The Institute extends its congratulations to Dr. Wijdicks for his extraordinary efforts.
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 the Department of 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

As part of the comprehensive federal health care reform, Karen Briggs, director of the Center for Outcomes-Based Orthopaedic Research at the Steadman Philippon Research Institute, was invited to review grants for the Patient-Centered Outcomes Research Institute (PCORI) in Washington, D.C. The nonprofit PCORI is authorized by Congress to conduct research to provide information about the best available evidence to help patients 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 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 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.
Dr. Hackett (right) with Alex Diebold following his second place finish in the FIS World Cup snowboard event in the Sochi, Russia Pre-Olympic test event.

UNITED STATES SKI AND SNOWBOARD ASSOCIATION HONORS DR. HACKETT WITH THE 2013 J. LELAND SOSMAN AWARD

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

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.
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 orthopaedic 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.

“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.
HALL OF FAME SKIERS JOIN SINGER-SONGWRITER EDWIN MCCAIN TO HONOR DR. J. RICHARD STEADMAN AND THE STEADMAN PHILIPPON RESEARCH INSTITUTE, JULY 5, 2013

The Steadman Philippon Research Institute hosted the annual “Rock the Research” event July 5th in Vail, commemorating the Silver Anniversary Celebration of the Institute and recognizing the contributions of SPRI founder and U.S. Ski Team physician, Dr. J. Richard Steadman. Five world-class skiers and former members of the U.S. Ski Team were in attendance to help honor the man who surgically repaired and rehabilitated their career-threatening injuries back in the ’70s and ’80s. In addition, alternative-rock singer and songwriter Edwin McCain headlined the fundraising concert at the Ritz-Carlton, Bachelor Gulch. Former patient, SPRI supporter, and Heisman Trophy winner Gen. Pete Dawkins served as master of ceremonies.

Skiers Cindy Nelson, Phil Mahre, Christin Cooper-Taché, Steve Mahre, and Mark Taché were excited to be at the live event to credit the doctor they say helped guide them from surgery through rehabilitation. When the Institute was still all but a dream to Dr. Steadman, these injured athletes (and others) could be found sitting on the living room floor or stretched out on the dining room table of Dr. Steadman’s home doing resistance exercises and range-of-motion moves days following their complex surgeries. It was Dr. Steadman himself who pushed the current medical standards of that era and worked side-by-side on the floor with these skiers guiding, resisting, and pushing them beyond the edge of then current rehab techniques.

All proceeds from the evening supported the research and education programs of SPRI, most notably in the areas of joint preservation and joint restoration research, along with new initiatives in youth sports injury prevention.

SPRI is most grateful to the following sponsors and participants:
Arthrex, Inc.
ATI Jet
Howard and Judy Berkowitz
Dr. Thomas Clanton
Caryn Clayman
John Paul and Eloise DeJoria
The Doctor’s Company and Arthur J. Gallagher
Dawkins Family Foundation
The Denver Broncos
Duckhorn Vineyards
Dr. Russell Hirsch
KSL Capital Partners
Patrick Matthews
Messner Matthews, LLP
Medequip
Mount-N-Frame
Napa Valley Reserve
Olatec Industries
Össur Americas, Inc.
Paderewski Fine Art
Michael Price
S & H Independent Premium Brands
Jim Shpall and Applejack Wine & Spirits
Silent Partners Limousines
Smith & Nephew Endoscopy
The Steadman Clinic
Ann B. Smead and Michael M. Byram
Southern Wine and Spirits
Tang Family Foundation
US Ski and Snowboard Foundation
Vail Resorts
Vail Catering Concepts
Vail Valley Medical Center
Vail Valley Pharmacy & The Nisonoff Family
Veuve Clicquot
Mr. and Mrs. Patrick Welsh
The Institute was selected by RE/MAX, LLC, the global real estate firm, to again hold the 10th annual Golf Classic at Sanctuary, a premier golf resort located south of Denver. Proceeds from the tournament support the development of new procedures and methodology to battle degenerative arthritis. The tournament was open to the public and included grateful patients and corporate supporters.

Since 2004, the Institute has raised more than $1,300,000 from this golf tournament to support its research programs.

The Institute is grateful to Mr. Dave and Mrs. Gail Liniger, owners and co-founders of RE/MAX, LLC who developed Sanctuary and created this unique opportunity for the Institute to develop and enhance relationships with those who support our mission. In addition, we wish to express our sincere appreciation to the following sponsors and participants:
ASSOCIATES

The Institute is proud to recognize its team of associates who carry out the research and educational mission in Vail. The staff has been selected for its diverse training and background in biomechanics, engineering, clinical research, veterinary science, and computer science. Together, the staff members take a multidisciplinary approach to their work in solving orthopaedic sports medicine problems.

ADMINISTRATION

Tom Mars  
Chief Executive Officer and President

Amy Ruther  
Administration Director

Monica White, CPA  
Controller

Megan Bryant  
Administrative Assistant

DEVELOPMENT

John G. McMurtry, M.A., M.B.A.  
Director of Development

Lynda Sampson  
Senior Development Officer

CENTER FOR TRANSLATIONAL AND REGENERATIVE MEDICINE RESEARCH

William G. Rodkey, D.V.M.  
Director

SURGICAL SKILLS LABORATORY

Kelly Adair  
Director

CENTER FOR OUTCOMES-BASED ORTHOPAEDIC RESEARCH (COOR)

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

Ashley Darrough  
Data Collection Coordinator

Grant Dornan, M.S.  
Statistician

Marilee Horan, M.P.H.  
Coordinator of Upper Extremity Research

Lauren Matheny  
Coordinator of Lower Extremity Research

Dawn Rossi  
Administrative Assistant

Rachel Abrams, M.D.  
Research Assistant

Dawn Ommen, M.D.  
Research Assistant

Ryan Warth, M.D.  
Research Assistant

Evan James  
Research Assistant

Nick Johnson, M.D.  
Research Assistant

BIOMEDICAL ENGINEERING

Coen A. Wijdicks, Ph.D.  
Director/Senior Staff Scientist

Mary Goldsmith, M.Sc.  
Senior Robotics Engineer

Sean Smith, M.Sc.  
Research Engineer

Travis Turnbull, Ph.D.  
Research Engineer

Rachel Surowiec, M.Sc.  
Research Scientist

Katharine Wilson, M.Sc.  
Research Engineer

Matt Rasmussen  
Research Assistant

Chris LaPrade  
Research Assistant

Brady Williams  
Research Assistant

IMAGING RESEARCH

Charles P. Ho, Ph.D., M.D.  
Director

Coley Gatlin, M.D.  
Griffin Visiting Scholar

W. Sean Smith, M.D.  
Imaging Fellow

EDUCATION

Robert F. LaPrade, M.D., Ph.D.  
Deputy Director, Sports Medicine Fellowship Program  
Director, International Scholar Program

Kelly Stoycheff  
Education & Fellowship Coordinator

Doug Gillard  
Spine Research Coordinator

Bernardo Crespo, M.D.  
Visiting Research Scholar

Simon Euler, M.D.  
Visiting Research Scholar

Fernando Ferro, M.D.  
Visiting Research Scholar

Ulrich Spiegl, M.D.  
Visiting Research Scholar

DEPARTMENT OF TECHNOLOGY AND MULTIMEDIA COMMUNICATION

Jason M. Gregg  
Director

Barry Eckhaus  
AudioVisual/Multimedia Manager

Angelica Wedell  
AudioVisual/Multimedia Technician

EXECUTIVE EDITOR

Jim Brown, Ph.D.
INDEPENDENT AUDITORS’ REPORT

To the Board of Directors
Steadman Philippon Research Institute and Subsidiary
Vail, Colorado

We have audited the accompanying consolidated financial statements of Steadman Philippon Research Institute and Subsidiary, which are comprised of the consolidated statements of financial position as of December 31, 2012 and 2011, and the related consolidated statements of activities, functional expenses, and cash flows for the years then ended, and the related notes to the consolidated financial statements.

MANAGEMENT’S RESPONSIBILITY FOR THE CONSOLIDATED FINANCIAL STATEMENTS

Management is responsible for the preparation and fair presentation of these consolidated financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

AUDITORS’ RESPONSIBILITY

Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We conducted our audits in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the consolidated financial statements. The procedures selected depend on the auditors’ judgment, including the assessment of the risks of material misstatement of the consolidated financial statements, whether due to fraud or error. In making those risk assessments, the auditors consider internal control relevant to the entity’s preparation and fair presentation of the consolidated financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity’s internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

OPINION

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of Steadman Philippon Research Institute and Subsidiary as of December 31, 2012 and 2011, and the changes in their net assets and their cash flows for the years then ended in accordance with accounting principles generally accepted in the United States of America.

EKS&H LLLP

July 16, 2013
Denver, Colorado
## Consolidated Statements of Financial Position

<table>
<thead>
<tr>
<th>ASSETS</th>
<th>December 31</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current assets</strong></td>
<td>2012</td>
<td>2011</td>
</tr>
<tr>
<td>Cash and cash equivalents</td>
<td>$1,402,658</td>
<td>$879,798</td>
</tr>
<tr>
<td>Accounts receivable</td>
<td>642</td>
<td>10,463</td>
</tr>
<tr>
<td>Accounts receivable, related parties</td>
<td>22,802</td>
<td>12,313</td>
</tr>
<tr>
<td>Contributions receivable, current portion</td>
<td>261,800</td>
<td>438,300</td>
</tr>
<tr>
<td>Prepaid expenses and other assets</td>
<td>977</td>
<td>2,514</td>
</tr>
<tr>
<td>Investments</td>
<td>4,606,283</td>
<td>4,664,307</td>
</tr>
<tr>
<td>Inventory</td>
<td>225,182</td>
<td>501,680</td>
</tr>
<tr>
<td><strong>Total current assets</strong></td>
<td>$6,520,344</td>
<td>$6,509,375</td>
</tr>
<tr>
<td>Contributions receivable, less current portion</td>
<td>174,342</td>
<td>579,151</td>
</tr>
<tr>
<td>Property and equipment, net</td>
<td>3,693,322</td>
<td>4,945,782</td>
</tr>
<tr>
<td>Investments - other</td>
<td>227,050</td>
<td>227,050</td>
</tr>
<tr>
<td><strong>Total assets</strong></td>
<td>$10,615,058</td>
<td>$12,261,358</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LIABILITIES AND NET ASSETS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current liabilities</strong></td>
<td></td>
</tr>
<tr>
<td>Accounts payable</td>
<td>$199,385</td>
</tr>
<tr>
<td>Accrued expenses</td>
<td>336,697</td>
</tr>
<tr>
<td>Line-of-credit</td>
<td>-</td>
</tr>
<tr>
<td>Current portion of long-term debt</td>
<td>248,847</td>
</tr>
<tr>
<td>Current portion of capital leases</td>
<td>433,127</td>
</tr>
<tr>
<td>Current portion of deferred rent</td>
<td>153,616</td>
</tr>
<tr>
<td><strong>Total current liabilities</strong></td>
<td>$1,371,672</td>
</tr>
<tr>
<td><strong>Long-term liabilities</strong></td>
<td></td>
</tr>
<tr>
<td>Long-term debt, net of current portion</td>
<td>689,325</td>
</tr>
<tr>
<td>Capital leases, net of current portion</td>
<td>100,789</td>
</tr>
<tr>
<td>Deferred tax liability</td>
<td>6,425</td>
</tr>
<tr>
<td>Deferred rent, net of current portion</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total liabilities</strong></td>
<td>$2,168,211</td>
</tr>
</tbody>
</table>

**Commitments**

**Net assets**

<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unrestricted</td>
<td>7,079,142</td>
<td>7,790,023</td>
</tr>
<tr>
<td>Temporarily restricted</td>
<td>1,367,705</td>
<td>1,598,664</td>
</tr>
<tr>
<td><strong>Total net assets</strong></td>
<td>8,446,847</td>
<td>9,388,687</td>
</tr>
</tbody>
</table>

**Total liabilities and net assets**

<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$10,615,058</td>
<td>$12,261,358</td>
</tr>
</tbody>
</table>

See Notes to Financial Statements
## Consolidated Statements of Activities

For the Years Ended December 31, 2012 and 2011

<table>
<thead>
<tr>
<th></th>
<th>December 31, 2012</th>
<th></th>
<th>December 31, 2011</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unrestricted</td>
<td>Temporarily Restricted</td>
<td>Total</td>
<td>Unrestricted</td>
</tr>
<tr>
<td><strong>REVENUES, GAINS, AND OTHER SUPPORT</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contributions</td>
<td>$ 998,080</td>
<td>$ 457,593</td>
<td>$ 1,455,673</td>
<td>$ 1,164,196</td>
</tr>
<tr>
<td>Fundraising events</td>
<td>885,724</td>
<td>-</td>
<td>885,724</td>
<td>361,888</td>
</tr>
<tr>
<td>Grants and corporate partners</td>
<td>1,024,156</td>
<td>1,474,053</td>
<td>2,498,209</td>
<td>737,507</td>
</tr>
<tr>
<td>MRI income</td>
<td>962,514</td>
<td>-</td>
<td>962,514</td>
<td>1,323,540</td>
</tr>
<tr>
<td>Other income</td>
<td>3,228</td>
<td>-</td>
<td>3,228</td>
<td>15,115</td>
</tr>
<tr>
<td>In-kind contributions</td>
<td>201,835</td>
<td>-</td>
<td>201,835</td>
<td>3,047,230</td>
</tr>
<tr>
<td></td>
<td>4,075,537</td>
<td>1,931,646</td>
<td>6,007,183</td>
<td>4,075,537</td>
</tr>
<tr>
<td>Net assets released from restrictions</td>
<td>(2,162,605)</td>
<td>-</td>
<td>(2,162,605)</td>
<td>1,774,630</td>
</tr>
<tr>
<td>Total revenues, gains, and other support</td>
<td>6,238,142</td>
<td>(230,959)</td>
<td>6,007,183</td>
<td>6,238,142</td>
</tr>
<tr>
<td><strong>Expenses and losses</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BioMedical engineering</td>
<td>1,537,409</td>
<td>-</td>
<td>1,537,409</td>
<td>1,519,245</td>
</tr>
<tr>
<td>Center for translational and regenerative medicine research</td>
<td>236,647</td>
<td>-</td>
<td>236,647</td>
<td>239,314</td>
</tr>
<tr>
<td>Surgical skills laboratory</td>
<td>1,184,788</td>
<td>-</td>
<td>1,184,788</td>
<td>986,725</td>
</tr>
<tr>
<td>Center for outcomes-based orthopaedic research</td>
<td>833,904</td>
<td>-</td>
<td>833,904</td>
<td>894,944</td>
</tr>
<tr>
<td>Education department</td>
<td>361,025</td>
<td>-</td>
<td>361,025</td>
<td>375,304</td>
</tr>
<tr>
<td>Department of technology and multimedia communications</td>
<td>264,393</td>
<td>-</td>
<td>264,393</td>
<td>228,300</td>
</tr>
<tr>
<td>Imaging research</td>
<td>767,588</td>
<td>-</td>
<td>767,588</td>
<td>839,220</td>
</tr>
<tr>
<td>Management and general</td>
<td>789,462</td>
<td>-</td>
<td>789,462</td>
<td>631,537</td>
</tr>
<tr>
<td>Development</td>
<td>720,428</td>
<td>-</td>
<td>720,428</td>
<td>708,733</td>
</tr>
<tr>
<td>Total expenses and losses</td>
<td>6,695,644</td>
<td>-</td>
<td>6,695,644</td>
<td>6,423,322</td>
</tr>
<tr>
<td><strong>Other income (expense)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Investment return</td>
<td>471,317</td>
<td>-</td>
<td>471,317</td>
<td>(135,285)</td>
</tr>
<tr>
<td>Interest expense</td>
<td>(71,683)</td>
<td>-</td>
<td>(71,683)</td>
<td>(85,218)</td>
</tr>
<tr>
<td>Total other income (expense)</td>
<td>399,634</td>
<td>-</td>
<td>399,634</td>
<td>(220,503)</td>
</tr>
<tr>
<td>Recinded pledge</td>
<td>(600,000)</td>
<td>-</td>
<td>(600,000)</td>
<td>-</td>
</tr>
<tr>
<td>Provision for income tax</td>
<td>(53,013)</td>
<td>-</td>
<td>(53,013)</td>
<td>(217,971)</td>
</tr>
<tr>
<td>Change in net assets</td>
<td>(710,881)</td>
<td>(230,959)</td>
<td>(941,840)</td>
<td>1,562,310</td>
</tr>
<tr>
<td>Net assets at beginning of year</td>
<td>7,790,023</td>
<td>1,598,664</td>
<td>9,388,687</td>
<td>7,790,023</td>
</tr>
<tr>
<td>Net assets at end of year</td>
<td>$7,079,142</td>
<td>$1,367,705</td>
<td>$8,446,847</td>
<td>$7,790,023</td>
</tr>
</tbody>
</table>

See Notes to Financial Statements
## Consolidated Statements of Cash Flows

For the Years Ended December 31

<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cash flows from operating activities</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change in net assets</td>
<td>(941,840)</td>
<td>1,576,016</td>
</tr>
<tr>
<td><strong>Adjustments to reconcile change in net assets to net cash provided by operating activities</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depreciation and amortization expense</td>
<td>1,356,261</td>
<td>1,232,320</td>
</tr>
<tr>
<td>Net (gain) loss on investments</td>
<td>(485,795)</td>
<td>139,404</td>
</tr>
<tr>
<td>Rescinded pledge</td>
<td>600,000</td>
<td>-</td>
</tr>
<tr>
<td>Amortization of deferred rent</td>
<td>(153,624)</td>
<td>(153,624)</td>
</tr>
<tr>
<td>Donated stock</td>
<td>(32,503)</td>
<td>-</td>
</tr>
<tr>
<td>Donated inventory</td>
<td>-</td>
<td>(728,000)</td>
</tr>
<tr>
<td>Donated property and equipment</td>
<td>-</td>
<td>(2,319,230)</td>
</tr>
<tr>
<td>Deferred taxes</td>
<td>(115,575)</td>
<td>21,000</td>
</tr>
<tr>
<td><strong>Changes in assets and liabilities</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accounts receivable</td>
<td>(668)</td>
<td>321,573</td>
</tr>
<tr>
<td>Contributions receivable</td>
<td>(18,691)</td>
<td>160,826</td>
</tr>
<tr>
<td>Prepaid expenses and other assets</td>
<td>1,537</td>
<td>(500)</td>
</tr>
<tr>
<td>Inventory</td>
<td>276,498</td>
<td>226,320</td>
</tr>
<tr>
<td>Accounts payable</td>
<td>133,932</td>
<td>7,109</td>
</tr>
<tr>
<td>Accrued expenses</td>
<td>152,697</td>
<td>(69,105)</td>
</tr>
<tr>
<td><strong>Net cash provided by operating activities</strong></td>
<td>772,229</td>
<td>414,109</td>
</tr>
<tr>
<td><strong>Cash flows from investing activities</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Purchase of investments</td>
<td>(885,078)</td>
<td>(9,924)</td>
</tr>
<tr>
<td>Proceeds from sale of investments</td>
<td>1,461,400</td>
<td>8,036</td>
</tr>
<tr>
<td>Purchases of property and equipment</td>
<td>(103,801)</td>
<td>(1,558,556)</td>
</tr>
<tr>
<td><strong>Net cash provided by (used in) investing activities</strong></td>
<td>472,521</td>
<td>(1,560,444)</td>
</tr>
<tr>
<td><strong>Cash flows from financing activities</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Payments on capital leases</td>
<td>(454,437)</td>
<td>(434,151)</td>
</tr>
<tr>
<td>Net (payments) borrowings on long-term debt</td>
<td>(258,354)</td>
<td>1,178,165</td>
</tr>
<tr>
<td>Net payments on line-of-credit</td>
<td>(9,099)</td>
<td>(330,920)</td>
</tr>
<tr>
<td><strong>Net cash (used in) provided by financing activities</strong></td>
<td>(721,890)</td>
<td>413,094</td>
</tr>
<tr>
<td><strong>Net increase (decrease) in cash and cash equivalents</strong></td>
<td>522,860</td>
<td>(733,241)</td>
</tr>
<tr>
<td><strong>Cash and cash equivalents at beginning of year</strong></td>
<td>879,798</td>
<td>1,613,039</td>
</tr>
<tr>
<td><strong>Cash and cash equivalents at end of year</strong></td>
<td>$ 1,402,658</td>
<td>$ 879,798</td>
</tr>
</tbody>
</table>

**Supplemental disclosure of cash flow information:**

Cash paid for interest was $71,683 and $85,218 for the years ended December 31, 2012 and 2011, respectively.
Cash paid for income taxes was $23,160 and $246,889 for the years ended December 31, 2012 and 2011, respectively.

See Notes to Financial Statements
<table>
<thead>
<tr>
<th>Program Services</th>
<th>BioMedical Engineering</th>
<th>Center for Surgical Skills</th>
<th>Center for Translational Laboratory</th>
<th>Center for Education Outcomes</th>
<th>Department of Imaging</th>
<th>Department of Technology</th>
<th>Research Services</th>
<th>Total Program Management and General Development</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salaries and benefits</td>
<td>$657,071</td>
<td>$159,690</td>
<td>$79,448</td>
<td>$644,712</td>
<td>$223,778</td>
<td>$182,516</td>
<td>$171,800</td>
<td>$2,119,015</td>
<td>$657,071</td>
</tr>
<tr>
<td>Consulting and contract labor</td>
<td>18,490</td>
<td>19,027</td>
<td>3,398</td>
<td>81,146</td>
<td>191,463</td>
<td>487,994</td>
<td>124,665</td>
<td>840,122</td>
<td>18,490</td>
</tr>
<tr>
<td>Supplies (office, computer, lab)</td>
<td>315,397</td>
<td>1,770</td>
<td>4,485</td>
<td>7,865</td>
<td>9,191</td>
<td>781,397</td>
<td>11,389</td>
<td>7,362</td>
<td>315,397</td>
</tr>
<tr>
<td>Events and fundraising</td>
<td>-</td>
<td>1,125</td>
<td>430</td>
<td>5,432</td>
<td>408</td>
<td>47</td>
<td>14,202</td>
<td>1,231</td>
<td>25,722</td>
</tr>
<tr>
<td>Printing</td>
<td>6,273</td>
<td>1,126</td>
<td>261</td>
<td>21,590</td>
<td>1,478</td>
<td>78,922</td>
<td>456</td>
<td>9,767</td>
<td>6,273</td>
</tr>
<tr>
<td>Maintenance and supplies</td>
<td>41,232</td>
<td>528</td>
<td>6,936</td>
<td>3,027</td>
<td>1,532</td>
<td>1,231</td>
<td>14,444</td>
<td>1,231</td>
<td>41,232</td>
</tr>
<tr>
<td>Rent and leases</td>
<td>50,415</td>
<td>261</td>
<td>9,267</td>
<td>6,636</td>
<td>36,932</td>
<td>160,508</td>
<td>7,867</td>
<td>2,754</td>
<td>170,919</td>
</tr>
<tr>
<td>Telephone and utilities</td>
<td>74,244</td>
<td>6,176</td>
<td>11,302</td>
<td>6,313</td>
<td>7,122</td>
<td>9,333</td>
<td>150,970</td>
<td>16,003</td>
<td>169,557</td>
</tr>
<tr>
<td>Travel</td>
<td>26,059</td>
<td>526</td>
<td>13,055</td>
<td>866</td>
<td>2,693</td>
<td>1,520</td>
<td>70,099</td>
<td>5,112</td>
<td>76,733</td>
</tr>
<tr>
<td>Legal and accounting</td>
<td>6,273</td>
<td>219</td>
<td>559</td>
<td>13,085</td>
<td>866</td>
<td>2,693</td>
<td>1,520</td>
<td>70,099</td>
<td>5,112</td>
</tr>
<tr>
<td>Furloughs</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Education, meetings, lectures</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Direct mail/planned giving</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Meals and entertainment</td>
<td>3,895</td>
<td>2,400</td>
<td>873</td>
<td>3,592</td>
<td>427</td>
<td>1,080</td>
<td>12,244</td>
<td>11,772</td>
<td>21,995</td>
</tr>
<tr>
<td>Gifts</td>
<td>3,028</td>
<td>3,767</td>
<td>414</td>
<td>1,591</td>
<td>221</td>
<td>742</td>
<td>5,154</td>
<td>3,394</td>
<td>8,548</td>
</tr>
<tr>
<td>Postage</td>
<td>4,419</td>
<td>76</td>
<td>4,266</td>
<td>1,269</td>
<td>1,269</td>
<td>1,269</td>
<td>1,269</td>
<td>1,269</td>
<td>1,269</td>
</tr>
<tr>
<td>Meeting fees/registrations</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>和 dues and subscriptions</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Bank/credit card fees</td>
<td>9,454</td>
<td>2,928</td>
<td>250</td>
<td>3,205</td>
<td>14,388</td>
<td>457</td>
<td>30,997</td>
<td>250</td>
<td>31,897</td>
</tr>
<tr>
<td>Meetings (Board and SAC)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Advertising</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>$1,231,465</td>
<td>$644,712</td>
<td>$233,778</td>
<td>$644,712</td>
<td>$223,778</td>
<td>$182,516</td>
<td>$171,800</td>
<td>$2,119,015</td>
<td>$1,231,465</td>
</tr>
</tbody>
</table>

See Notes to Financial Statements.
<table>
<thead>
<tr>
<th>Program Services</th>
<th>Support Services</th>
<th>BioMedical Engineering</th>
<th>Center for Surgical Skills</th>
<th>Center for Translational Laboratory</th>
<th>Center for Education Outcomes</th>
<th>Department of Imaging</th>
<th>Total Program Management and Technology</th>
<th>Research Services</th>
<th>General Development</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salaries and benefits</td>
<td>$778,641</td>
<td>$175,448</td>
<td>$180,089</td>
<td>$157,767</td>
<td>$187,023</td>
<td>$276,065</td>
<td>$276,065</td>
<td>$2,017,193</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consulting and contract labor</td>
<td>$21,394</td>
<td>$311,774</td>
<td>$424,946</td>
<td>$276,165</td>
<td>$705,397</td>
<td>$2,521,193</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supplies (office, computer, lab)</td>
<td>$4,186</td>
<td>$533,506</td>
<td>$500,121</td>
<td>$147,617</td>
<td>$147,617</td>
<td>$695,738</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Events and fundraising</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Printing</td>
<td>8,689</td>
<td>1,229</td>
<td>1,229</td>
<td>1,229</td>
<td>1,229</td>
<td>1,229</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maintenance and supplies</td>
<td>35,963</td>
<td>8,385</td>
<td>10,109</td>
<td>4,092</td>
<td>1,304</td>
<td>85,797</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rent and leases</td>
<td>58,822</td>
<td>4,929</td>
<td>15,825</td>
<td>15,825</td>
<td>15,825</td>
<td>15,825</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Telephone and utilities</td>
<td>78,549</td>
<td>44,218</td>
<td>21,061</td>
<td>21,061</td>
<td>21,061</td>
<td>21,061</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Travel</td>
<td>42,173</td>
<td>214</td>
<td>12,916</td>
<td>12,916</td>
<td>12,916</td>
<td>12,916</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Legal and accounting</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fellows</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education meetings/lectures</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct mail/planned giving</td>
<td>8,627</td>
<td>4,773</td>
<td>7,715</td>
<td>10,000</td>
<td>10,000</td>
<td>10,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meals and entertainment</td>
<td>5,486</td>
<td>3,710</td>
<td>19,462</td>
<td>4,092</td>
<td>4,092</td>
<td>20,576</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Postage</td>
<td>3,047</td>
<td>(29)</td>
<td>1,905</td>
<td>1,905</td>
<td>1,905</td>
<td>1,905</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insurance</td>
<td>1,503</td>
<td>194</td>
<td>194</td>
<td>194</td>
<td>194</td>
<td>194</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meeting fees/registrations</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>and dues and subscriptions</td>
<td>18,183</td>
<td>3,502</td>
<td>2,456</td>
<td>2,456</td>
<td>2,456</td>
<td>2,456</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bank/credit card fees</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meetings (Board and SAC)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research grant</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advertising</td>
<td>200</td>
<td>200</td>
<td>200</td>
<td>200</td>
<td>200</td>
<td>200</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total** $1,519,245 $239,314 $796,275 $894,944 $375,304 $728,300 $839,200 $708,733 $6,423,322

See Notes to Financial Statements
NOTE 1
ORGANIZATION AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

ORGANIZATION
The Steadman Philippon Research Institute ("SPRI"), a non profit organization, was incorporated in the state of Colorado on February 22, 1999, was founded in 1988, and is a tax exempt organization under Section 501(c)(3) of the Internal Revenue Code ("IRC"). SPRI is located in Vail, Colorado, and 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. SPRI’s primary sources of support are public donations, grants, special events, and corporate partners.

SPRI has agreements with several corporations that sponsor SPRI’s research. This research is for the general use of and publication by SPRI. These agreements are recorded as income in the year the research is performed and payment is received.

SPRI created the SPRI Leasing Corporation ("Subsidiary"), a wholly owned subsidiary, in order to hold the assets, liabilities, revenues, and expenses derived from SPRI’s MRI scanner.

PRINCIPLES OF CONSOLIDATION
The reporting entity referred to as Steadman Philippon Research Institute and Subsidiary (collectively, the "Institute") includes the accounts of SPRI and SPRI Leasing Corporation. All intercompany accounts and transactions have been eliminated in consolidation.

BASIS OF PRESENTATION
The Institute reports information regarding its financial position and activities according to three classes of net assets: unrestricted net assets, temporarily restricted net assets, and permanently restricted net assets.

Unrestricted amounts are those currently available at the discretion of the Board of Directors ("Board") for use in the Institute’s operations, fundraising, and certain programs.

Temporarily restricted amounts are monies restricted by donors specifically for certain purposes or programs; these monies are available for use by the Institute for the restricted purpose.

Permanently restricted amounts are assets that must be maintained permanently by the Institute as required by the donor, but the Institute is permitted to use or expend part or all of any income derived from those assets. As of December 31, 2012 and 2011, the Institute did not have any permanently restricted amounts.

CASH AND CASH EQUIVALENTS
The Institute considers all highly liquid investments with a maturity of three months or less when purchased to be cash equivalents, unless held for reinvestment as part of the investment portfolio or otherwise encumbered.

ACCOUNTS AND CONTRIBUTIONS RECEIVABLE
Accounts and contributions receivable represent amounts due from individuals and organizations in support of the Institute’s programs. Management considers all amounts collectible; therefore, no allowance has been recorded as of December 31, 2012 and 2011.

Unconditional gifts expected to be collected within one year are reported at their net realizable value. Unconditional gifts expected to be collected in future years are reported at the present value of estimated future cash flows. The resulting discount is amortized using the level yield method and is reported as contribution revenue.

INVESTMENTS
The Institute reports investments in equity securities with readily determinable fair values and all investments in debt securities at their fair values with unrealized gains and losses included in the consolidated statements of activities.

The Institute holds alternative investments, which are not readily marketable and are carried at fair value as provided by the investment managers. The Institute reviews and evaluates the value provided by the investment managers and agrees with the valuation methods and assumptions used in determining the fair value of the alternative investments. Those estimated fair values may differ significantly from the values that would have been used had a ready market for these securities existed.

Investment return includes dividend, interest, and other investment income; realized and unrealized gains and losses on investments carried at fair value; and realized gains and losses on other investments. Investment return is reflected in the consolidated statements of activities as unrestricted, temporarily restricted, or permanently restricted based upon the existence and nature of any donor or legally imposed restrictions.

INVENTORY
Inventory is stated at the lower of cost (first in, first out method) or market and consists of medical supplies. Inventory consists of donated medical supplies of medical implants and cadaveric specimens used for medical research.

PROPERTY AND EQUIPMENT
Land, buildings and improvements, and equipment purchased by the Institute are recorded at cost. Donated fixed assets are capitalized at fair value at the date of donation. Depreciation is provided on the straight line method based upon the estimated useful lives of the assets, which range from three to seven years. Leasehold improvements are amortized over the shorter of the lease term plus renewal options or the estimated useful lives of the improvements.

OTHER INVESTMENTS
During 2009, the Institute received a contribution of real estate, which was recorded at estimated fair value at the date of donation. The investment is assessed for impairment if events and circumstances warrant such a review.
DETERMINED CASH AND CASH EQUIVALENTS
Tenant improvement allowances paid by the landlord are recorded as deferred rent and are recognized as a reduction of rent expense over the term of the related lease.

CONTRIBUTIONS
Gifts of cash and other assets received without donor stipulations are reported as unrestricted support. Gifts received with a donor stipulation that limits their use are reported as temporarily or permanently restricted support. When a donor stipulated time restriction ends or a purpose restriction is accomplished, temporarily restricted net assets are reclassified to unrestricted net assets and reported in the consolidated statements of activities as net assets released from restrictions.

Gifts of land, buildings, equipment, and other long lived assets are reported as unrestricted support unless explicit donor stipulations specify how such assets must be used, in which case the gifts are reported as temporarily or permanently restricted support. Absent explicit donor stipulations for the time that long lived assets must be held, expirations of restrictions resulting in reclassification of temporarily restricted net assets as unrestricted net assets are reported when the long lived assets are placed in service.

REVENUE RECOGNITION
MRI and other income are recognized at the time the services are provided.

FUNCTIONAL EXPENSES
Expenses incurred directly for a program service are charged to such program. Allocations of certain overhead costs are also allocated to programs on a pro rata basis of total space occupied by each service or by headcount.

RESCINDED PLEDGE
During the year ended December 31, 2012, a donor notified the Institute that they were rescinding the remaining $600,000 of a pledge made in 2010.

INCOME TAXES
SPRI is exempt from federal income taxes under Section 501(c)(3) of the IRC. SPRI is not a private foundation within the meaning of Section 509(a) of the IRC.

SPRI Leasing Corporation is a for profit corporation that is required to file a corporate income tax return for its operations and recognizes deferred tax assets and liabilities based upon differences between its basis of assets for tax and financial reporting purposes.

The Institute applies a more likely than not measurement methodology to reflect the financial statement impact of uncertain tax positions taken or expected to be taken in a tax return. After evaluating the tax positions taken, none are considered to be uncertain; therefore, no amounts have been recognized as of December 31, 2012 and 2011. If incurred, interest and penalties associated with tax positions are recorded in the period assessed as general and administrative expense. No interest or penalties have been assessed as of December 31, 2012. Tax years that remain subject to examination include 2009 through the current year for federal returns and 2008 through the current year for state returns.

USE OF ESTIMATES
The preparation of consolidated financial statements in conformity with generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, disclosures of contingent assets and liabilities at the date of the consolidated financial statements, and the reported amounts of revenue, expenses, gains, losses, and other changes in net assets during the reporting period. Actual results could differ from those estimates.

RECLASSIFICATIONS
Certain amounts in the 2011 consolidated financial statements have been reclassified to conform to the 2012 presentation.

SUBSEQUENT EVENTS
The Institute has evaluated all subsequent events through the auditors’ report date, which is the date the consolidated financial statements were available for issuance.

NOTE 2
FAIR VALUE MEASUREMENTS AND INVESTMENTS
The Institute values its financial assets and liabilities based on the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. In order to increase consistency and comparability in fair value measurements, the following fair value hierarchy prioritizes observable inputs used to measure fair value into three broad levels, which are described below:

Level 1: Quoted prices in active markets for identical assets or liabilities that are accessible at the measurement date. The fair value hierarchy gives the highest priority to Level 1 inputs.

Level 2: Other than quoted prices that are observable for the asset or liability either directly or indirectly.

Level 3: Unobservable inputs where little or no market data is available, which requires the reporting entity to develop its own assumptions.

In determining fair value, the Institute utilizes valuation techniques that maximize the use of observable inputs and minimize the use of unobservable inputs to the extent possible as well as considers counterparty credit risk in its assessment of fair value. These classifications (Levels 1, 2, and 3) are intended to reflect the observability of inputs used in the valuation of investments and are not necessarily an indication of risk or liquidity.

Following is a description of the valuation methodologies used for assets measured at fair value:

Common Stock and Mutual Funds: Valued at the closing price reported on the active market on which the individual securities are traded.

Limited Partnerships: Valued based on the net asset value per share of the fund.

There have been no changes to valuation methodologies during the years ended December 31, 2012 and 2011.
Financial assets carried at fair value as of December 31, 2012 are classified in the table below in one of the three categories described above.

<table>
<thead>
<tr>
<th>Description</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common stock</td>
<td>$ 25,303</td>
<td>-</td>
<td>-</td>
<td>$ 25,303</td>
</tr>
<tr>
<td>Equity mutual funds</td>
<td>667,240</td>
<td>-</td>
<td>-</td>
<td>667,240</td>
</tr>
<tr>
<td>Limited partnerships</td>
<td>-</td>
<td>3,913,315</td>
<td>-</td>
<td>3,913,315</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$ 692,545</td>
<td>$ 3,913,315</td>
<td>-</td>
<td>$ 4,605,860</td>
</tr>
</tbody>
</table>

Financial assets carried at fair value as of December 31, 2011 are classified in the table below in one of the three categories described above.

<table>
<thead>
<tr>
<th>Description</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equity mutual funds</td>
<td>576,116</td>
<td>-</td>
<td>-</td>
<td>576,116</td>
</tr>
<tr>
<td>Limited partnerships</td>
<td>-</td>
<td>3,033,586</td>
<td>-</td>
<td>3,033,586</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>576,116</td>
<td>$ 3,033,586</td>
<td>-</td>
<td>$ 3,609,702</td>
</tr>
</tbody>
</table>

Included in investments on the consolidated statements of financial position are money market funds in the amount of $423 and $1,054,605 at December 31, 2012 and 2011, respectively, which are not subject to fair value classification.

Investments in certain entities that calculate net asset value per share are as follows:

The Absolute Return Funds employ a strategy to achieve consistent positive, absolute returns with low volatility primarily by seeking to exploit pricing inefficiencies in equity and debt securities and by using a traditional hedge fund approach. The fair value of the investments has been calculated using the net asset value per share of the investments.

Investment return consists of the following:

<table>
<thead>
<tr>
<th>Description</th>
<th>As of December 31,</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2012</td>
</tr>
<tr>
<td>Dividends and interest - reinvested</td>
<td>$6,364</td>
</tr>
<tr>
<td>Net realized and unrealized gains (losses)</td>
<td>485,795</td>
</tr>
<tr>
<td>Other Fees</td>
<td>(20,842)</td>
</tr>
<tr>
<td><strong>Total return on investments</strong></td>
<td>$471,317</td>
</tr>
</tbody>
</table>

NOTE 5
LINE-OF-CREDIT

The Institute has an unsecured line of credit with a bank, which bears interest at the prime rate per annum less 0.25% (3.00% at December 31, 2012). As of December 31, 2012, there was no outstanding balance. As of December 31, 2011, the outstanding balance was $9,099.

Subsequent to year end, the Institute canceled the line of credit and entered into a new unsecured line of credit agreement with a different bank. The amount available on the new line of credit is $1,500,000. Draws on the line of credit bear interest at prime plus 0.50% and the line of credit matures in March 2018. Subsequent to year end, the Institute used the new line of credit to pay off the long term debt.

NOTE 6
LONG-TERM DEBT

<table>
<thead>
<tr>
<th>Description</th>
<th>As of December 31,</th>
</tr>
</thead>
<tbody>
<tr>
<td>Note payable to a bank, interest accruing at 4.75%, payable in monthly installments of principal and interest of $958. The note is unsecured. The note was paid in full during 2012.</td>
<td>$ -</td>
</tr>
<tr>
<td>Note payable to a bank, interest accruing at 4.00%, payable in monthly installments of principal and interest of $10,805, due May 2016. The note is unsecured.</td>
<td>413,009</td>
</tr>
<tr>
<td>Note payable to a bank, interest accruing at 4.00%, payable in monthly installments of principal and interest of $13,739, due June 2016. The note is secured by all business assets.</td>
<td>525,163</td>
</tr>
<tr>
<td>Less current portion</td>
<td>938,172</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$689,325</td>
</tr>
</tbody>
</table>

Maturities of the notes payable are as follows:

Subsequent to year end, the Institute drew on its line of credit to pay off the long term debt in full.
NOTE 7
CAPITAL LEASES

The Institute has acquired assets under the provisions of capital leases. For financial reporting purposes, minimum lease payments relating to the assets have been capitalized. The leases expire between June 2013 and March 2014. Amortization of the leased property is included in depreciation expense.

The assets under capital leases have cost and accumulated amortization as follows:

<table>
<thead>
<tr>
<th>December 31,</th>
<th>2012</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equipment</td>
<td>$2,188,507</td>
<td>$2,188,507</td>
</tr>
<tr>
<td>Less accumulated amortization</td>
<td>(1,663,474)</td>
<td>(1,209,027)</td>
</tr>
<tr>
<td></td>
<td>$ 525,033</td>
<td>$ 979,480</td>
</tr>
</tbody>
</table>

Maturities of capital lease obligations are as follows:

For the Year Ending December 31,

<table>
<thead>
<tr>
<th></th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total minimum lease payments</td>
<td>545,212</td>
<td>101,415</td>
</tr>
<tr>
<td>Amount representing interest</td>
<td>(11,296)</td>
<td>(433,127)</td>
</tr>
<tr>
<td>Present value of net minimum lease payments</td>
<td>533,916</td>
<td></td>
</tr>
<tr>
<td>Less current portion</td>
<td>(433,127)</td>
<td></td>
</tr>
<tr>
<td>Long-term capital lease obligation</td>
<td>$100,789</td>
<td></td>
</tr>
</tbody>
</table>

NOTE 8
RETIREMENT PLAN

The Institute has a defined contribution retirement plan (the “Plan”) under IRC Section 401(k). Employees are eligible to participate in the Plan after one year of service. The Institute’s contributions to the Plan are determined annually. The Institute contributed $20,852 and $13,584 to the Plan in fiscal years 2012 and 2011, respectively.

NOTE 9
TEMPORARILY RESTRICTED NET ASSETS

The temporarily restricted net assets that have been restricted by the donors to be used only for specified purposes and/or are time restricted until payments on contributions receivable are received as follows:

<table>
<thead>
<tr>
<th>December 31,</th>
<th>2012</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assets available for Education</td>
<td>$931,563</td>
<td>$581,963</td>
</tr>
<tr>
<td>Assets available in future periods</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>74,213</td>
<td>122,663</td>
</tr>
<tr>
<td>BioMedical engineering</td>
<td>42,914</td>
<td>353,196</td>
</tr>
<tr>
<td>Center for outcomes-based orthopaedic research</td>
<td>42,914</td>
<td>353,196</td>
</tr>
<tr>
<td>Imaging</td>
<td>100,000</td>
<td>100,000</td>
</tr>
<tr>
<td>Time restricted only</td>
<td>219,015</td>
<td>151,009</td>
</tr>
<tr>
<td>Total contributions receivable</td>
<td>$1,367,705</td>
<td>$1,598,664</td>
</tr>
</tbody>
</table>

NOTE 10
RELATED PARTY TRANSACTIONS

During 2012 and 2011, the Institute received approximately $862,000 and $334,000, respectively, in contributions from related parties, including various Board members, employees, and medical staff at The Steadman Clinic (the “Clinic”). In addition, the Institute received $962,514 and $1,323,540 from the Clinic during 2012 and 2011, respectively, as a corporate sponsor and for the use of certain equipment.

NOTE 11
INCOME TAXES

Income tax expense has been computed at the statutory rates applicable during the period. The components of taxes on income are as follows:

For the Years Ended December 31,

<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Federal</td>
<td>$82,000</td>
<td>$256,000</td>
</tr>
<tr>
<td>State</td>
<td>11,000</td>
<td>36,000</td>
</tr>
<tr>
<td></td>
<td>93,000</td>
<td>292,000</td>
</tr>
<tr>
<td>Deferred Federal</td>
<td>(35,000)</td>
<td>44,000</td>
</tr>
<tr>
<td>State</td>
<td>(5,000)</td>
<td>6,000</td>
</tr>
<tr>
<td></td>
<td>(40,000)</td>
<td>50,000</td>
</tr>
<tr>
<td></td>
<td>$53,000</td>
<td>$342,000</td>
</tr>
</tbody>
</table>

The Institute’s deferred tax liabilities are a result of the difference in the tax and book basis of depreciable assets.

NOTE 12
COMMITMENTS

Operating Leases

The Institute leases facilities under non cancelable operating leases expiring between December 2013 and February 2016, which call for both base rent payments and operating expenses. Rent under these leases for the years ended 2012 and 2011 was $170,919 and $149,240, respectively.

Future minimum lease payments under these leases, which include the repayments for tenant improvement allowances, are as follows:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$313,924</td>
<td>126,120</td>
<td>127,062</td>
<td>10,722</td>
</tr>
<tr>
<td></td>
<td>$577,828</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

87