



INSTITUTE INSIGHT

**Tom Mars Named CEO of the Steadman Clinic and Steadman Philippon Research Institute**

Tom Mars, a former Walmart executive and SPRI Board member, has been named chief executive officer of both The Steadman Clinic and the Steadman Philippon Research Institute.

The announcement was made on October 16, 2013, by Steadman Clinic Managing Partner/Founder Dr. J. Richard Steadman and Managing Partner Dr. Marc Philippon.

Mars spent more than a decade with Walmart, the world's largest retailer. Before retiring earlier this year, he served as executive vice president and chief administrative officer for Walmart U.S. He was responsible for real estate strategy and operations, human resources, asset protection, and financial services. He also led the company's employment practices, labor relations, and compliance departments. From 2002–2009, Mars served as Walmart's general counsel.

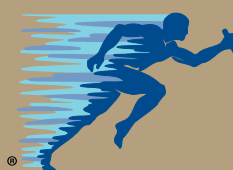
Prior to joining Walmart, Tom practiced law in Arkansas for 10 years, and in 1998 was appointed to serve as director of the Arkansas State Police.

"Tom's executive experience, integrity, and leadership skills make him the right person to lead both The Steadman Clinic and the Steadman Philippon Research Institute," said Dr. Steadman. "We knew Tom from his work with the Board, but what really impressed us during the hiring process was how passionate he is about applying his talent and experience to the mission of our non-profit

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Vail Valley Medical Center 2014 Steadman Philippon Research Institute Golf Classic at Sanctuary



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Research Institute: Keeping people of all ages physically active through orthopaedic research and education.”

“Tom will be a great fit for us,” said Dr. Philippon. “He knows our organization well. He’s been a patient

of The Steadman Clinic and has served on the SPRI Board. He is an effective communicator with great people skills and will help us achieve our full potential for keeping people active.”

“Any seasoned business executive who is familiar with The Steadman Clinic and the Steadman Philippon Research Institute would jump at the opportunity to lead these great organizations,” said Mars. “Given my perspective as a SPRI Board member and a former patient of The Steadman Clinic, it’s easy to see the potential for these organizations to have an even greater influence on the advancement of sports medicine. My family and I are looking forward to living in the Vail Valley and being part of the community.”

Mars assumed his duties at The Steadman Clinic and the Steadman Philippon Research Institute in October.



## CHARITABLE GIVING WITH YOUR IRA EXPIRING IN 2013

Under current IRA charitable gift legislation, which was extended through 2013, you have until the end of 2013 to make a charitable gift using your individual retirement account (IRA) without incurring undesirable tax effects.

If you are 70½ or older, you can make a gift directly to the Steadman Philippon Research Institute by simply instructing your plan administrator to make a gift from your IRA directly to the Institute.

There are three important benefits to making a gift this way:

- Your generosity will start making a difference in our research, our programs, and people’s lives immediately.

- You will be taking advantage of legislation that allows you to make a gift without a federal tax consequence.
- You can use your gift toward your minimum distribution requirement.

It’s especially nice to take advantage of these benefits now and see your gift go to work right away.

### All you need is to:

- be 70½ or older at the time of the gift
- want to give directly from your IRA to the Institute in any amount up to \$100,000 (This opportunity applies only to IRAs and not to other types of retirement plans.)

## THE BENEFIT OF GIVING STOCK

Donating your long-term appreciated securities to the Steadman Philippon Research Institute will provide a full income tax deduction based upon the current market value and allow you to completely avoid having to pay capital gains tax on your donated investment.

To protect your income tax deduction for this tax year, the most critical aspect of a gift of stock is to **ensure that the securities arrive in our brokerage account by December 31, 2013.** If your year-end giving includes gifts of

stock, make sure you allow plenty of time for the completion of your instructions to your broker and the transfer of the securities.

The easiest way to make a gift of appreciated securities is through an electronic transfer. Contact your broker to determine what, if any, paperwork they require to transfer your securities to our brokerage account. Your broker will need to contact John McMurtry at (970) 479-5781 or mcmurtry@sprivail.org for the banking and account numbers needed to execute the

## Dr. Marc Philippon's Landmark Hip Labral Reconstruction Study Published as Lead Article in Highest Rated Sports Medicine Journal

Innovative arthroscopic procedure developed in Vail and validated by SPRI

The findings of 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  
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- have your plan administrator transfer the funds directly to the Institute (The legislation does not permit direct transfers to charitable trusts, donor advised funds, charitable gift annuities, or supporting organizations.)
- make your gift by Dec. 31, 2013

With the end of the year on the horizon, we encourage you to talk with your advisors about taking advantage of this tax-wise gift opportunity. If you have any questions about this or other giving (for instance, gifts of stock), please contact John McMurtry at (970) 479-5781 or [mcmurtry@sprivail.org](mailto:mcmurtry@sprivail.org).

donation. Be sure to let your broker know you want the transfer completed by December 31.

With the transfer of your securities, you or your broker must provide us with your name and complete address and the name and number of the securities you transferred.

If you have physical possession of the security certificates, please contact John McMurtry, at (970) 479-5781 or [mcmurtry@sprivail.org](mailto:mcmurtry@sprivail.org) for instructions on the most secure way to deliver the certificates. Thank you for including the Institute in your giving plans!

## SPRI Sports Medicine Fellow Receives International Research Award in Munich

International Society for Hip Arthroscopy (ISHA) recognizes Dr. Jeff Nepple for excellence in clinical research

Dr. Jeff Nepple, a Sports Medicine fellow (class of 2012–2013) at the Steadman Philippon Research Institute, was honored October 12–13 in Munich, Germany, with a major international award presented by ISHA at its annual scientific meeting. He was one of eight finalists.

The Richard N. Villar Trainee Excellence in Clinical Research Award was presented to Dr. Nepple for his presentation of research conducted during his fellowship year at SPRI titled "The Effect of an Acetabular Labral Tear, Repair, Resection, and Reconstruction on the Hip Fluid Seal." The award was created to recognize young researchers who contribute high-quality research and information. Residents and fellows with a study related to hip arthroscopy were encouraged to apply.

SPRI Sports Medicine Fellowship Deputy Director and Chief Medical Officer Robert F. LaPrade, M.D., Ph.D., commented, "It is my pleasure to announce that a SPRI Sports Medicine fellow was recognized with an international research award this past Saturday in Munich, Germany."

"Since the opening of the new SPRI Laboratories in 2011, there have been two fellowship classes that have had the opportunity to perform quality research within BioMedical Engineering, and Jeff's year represents the second fellowship class with a member to win an international award."

Earlier this year, Dr. Jeff Padalecki won the Albert Trillat Young Investigator's Award presented by the International Society of Arthroscopy, Knee Surgery, and Orthopaedic Sports Medicine at its biennial congress. The award was based on his research on the effects of radial root tears and repairs on medial compartment joint loads and contact areas.

The ISHA Awards Program is committed to recognizing and honoring young researchers whose work has contributed to better understanding and communication within the field of hip arthroscopy.

ISHA was established in 2008 to further the development, through education and research, of arthroscopic hip surgery. Dr. Marc Philippon is a founding member.



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## The validation of Dr. Philippon's novel procedure changes the landscape of arthroscopic hip surgery and illustrates the value of data collected by SPRI's Center for Outcomes-Based Orthopaedic Research (COOR).

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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 before the procedure and 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 arthroscopy reported improvement in function, as well as high satisfaction with the outcome. The research also revealed that joint space of two millimeters or less was 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 Fagrelus.



### Acetabular Labral Reconstruction With an Iliotibial Band Autograft Outcome and Survivorship Analysis at Minimum 3-Year Follow-up

Mark R. Geyer,<sup>1</sup> MD, Marc J. Philippon,<sup>1†</sup> MD, Theodore S. Fagrelus,<sup>1</sup> BA, and Karen K. Briggs,<sup>1</sup> MPH  
Investigation performed at Steadman Philippon Research Institute, Vail, Colorado

**Background:** Injury to the acetabular labrum results from multiple causes including femoroacetabular impingement, dysplasia, and acute trauma. The patient's labrum can be reconstructed utilizing an iliotibial band autograft that is sutured and fixed to the acetabular rim, substituting for the patient's own labrum.

**Purpose/Hypothesis:** The purpose of this study was to evaluate the midterm results of this technique with a follow-up from 3 to 6 years after reconstruction. The hypothesis was that midterm results would show excellent patient-reported outcomes and high patient satisfaction with outcome.

**Study Design:** Case series; Level of evidence, 4.

**Methods:** A retrospective review of a prospectively collected registry was undertaken that identified 75 patients (76 hips) who underwent arthroscopic labral reconstruction using an iliotibial band autograft by a single surgeon from February 2005 to August 2008. Modified Harris Hip Score (mHHS), Hip Outcome Score (HOS), and patient satisfaction level on a scale of 1-10 were recorded preoperatively and postoperatively annually. Survivorship analysis curves were created to evaluate the effectiveness of this technique.

**Results:** Among 76 hips, 19 progressed to total hip arthroplasty at an average of 28 months from the procedure. Mean survivor time (no arthroplasty) was 59.1 months (95% CI, 53.9-64.4). Follow-up on the surviving hips was available for 49 patients (66%) with a mean follow-up time of 49 months (range, 36-70 months). The mHHS significantly increased from a preoperative mean of 58.9 to the most recent follow-up score averaging 83 ( $P = .0001$ ). HOS values in the sports and the activities of daily living subscales also increased significantly ( $P = .0001$  and  $P = .001$ , respectively). Median patient satisfaction with outcome was 8. A joint space of  $\leq 2$  mm was found to be a poor prognostic factor for survival of the hip.

**Conclusion:** Arthroscopic labral reconstruction using an iliotibial band autograft resulted in a survivorship of 56 months. Of the 76% of patients who did not require total hip arthroplasty, improvement in function and high satisfaction with outcome were reported. Joint space of  $\leq 2$  mm is a contraindication for acetabular labral reconstruction.

**Keywords:** labral reconstruction; femoroacetabular impingement; labrum; autograft; iliotibial band

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<sup>1</sup>Steadman Philippon Research Institute, Vail, Colorado. Presented at the stein meeting of the AOSSM, Chicago, Illinois, March 2013.

One or more of the authors has declared the following potential conflict of interest or source of funding: M.J.P., T.S.F., and M.R.G. have received research funding from Smith & Nephew, Ocular Sciences, and Arthro. M.J.P. has received royalties from Smith & Nephew. Arthrofactor, DonJoy, Stryker, and Elsevier and is a stockholder in MPICO, Med, and Arthrofactor. Smith & Nephew provided a research grant to fund this study.

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The evolution of treatments for hip injuries, particularly in the young patient, has been tremendous. A greater understanding of the anatomy, biomechanics, and pathological abnormalities of hip disorders, together with advances in technology, has made treatment of the hip one of the biggest advances in orthopedics over the past decade. As part of this process, injury to the acetabular labrum appears as a common pathway to multiple causes such as femoroacetabular impingement, dysplasia, and acute trauma. The acetabular labrum has been shown to have an important function in sealing the central compartment, which increases hip stability as well as trapping synovial fluid in the central compartment.<sup>1,2</sup> A labral lesion or loss of labral tissue has been shown to be associated with early progression of hip joint arthritis.<sup>3,4</sup>

## Dr. Coley Gatlin Named First Recipient of the Griffin Visiting Scholar for Clinical Sports Medicine MRI

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.

After settling into his work as a visiting scholar, Dr. Gatlin visited with the editors of the SPRI 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 SPRI?

**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, 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 SPRI?

**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."

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

**Dr. Gatlin:** "I was very impressed. Two stories, multiple rooms, lots of athletes being treated. SPRI 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 SPRI 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 SPRI fellows in such a short period of time."

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

**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 Vail?**

**Dr. Gatlin:** "It's a great place to spend a year or live a lifetime."

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

**Dr. Gatlin:** "I would encourage people to support SPRI because of the clinical research conducted here that impacts patients at all levels. There are world-class orthopaedic surgeons and scientists at SPRI 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."



PATIENTS IN THE NEWS

## Five Ski Champions Look Back and to the Future with Dr. Richard Steadman

Cindy Nelson, Phil Mahre, Christin Cooper-Taché, Steve Mahre, and Mark Taché remember the early days

By Jim Brown, Executive Editor, *SPRI News*

It was long before innovative surgical techniques like microfracture and the healing response. Before a massive, one-of-a-kind 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

PHOTOS (L to R):  
Olympic and world champion medalist Cindy Nelson, at Aspen Winter National World Cup, 1982. Photo credit: John Kelly

Phil Mahre (11) stands with his brother Steve (3) after the 1984 Winter Olympics slalom on Mt. Bjelasnica, Sarajevo, Feb. 19, 1984. Phil and Steve took top honors with Phil winning gold and Steve silver. AP Photo/Jack Smith

Olympic and world champion medalist Christin Cooper-Taché

Mark Taché, top ranked slalom skier, 1985, U.S. Ski Team.

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Cindy Nelson, at the Aspen Winter International, March, 1982. Photo: John Kelly

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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 pic-

ture 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



Phil Mahre becomes airborne as he skis during training run on the downhill course at Aspen, Colorado, March 2, 1984. (AP Photo)



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.' "

(continued on page 10)



*Christin Cooper, racing to a silver medal in Giant Slalom, 1984 Winter Olympics, Sarajevo. (AP Photo)*



*Steve Mahre races the slalom course in the first run of the men's slalom, 1984 Winter Olympics in Sarajevo, and placed second behind his twin brother, Phil Mahre to win the silver medal. (Copyright Bettmann/Corbis/AP Images)*



Mark Taché, Vail World Cup 1984.

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“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 the visionary’s mind of Richard Steadman, his work is just getting started.



### RESEARCH UPDATE

## SPRI Study Looks at Platelet-Rich Plasma for Ligament Healing

A team of physicians and scientists in the Department of BioMedical Engineering at SPRI led by Dr. Marc Philippon, Dr. Robert LaPrade, and Coen Wijdicks, Ph.D., is conducting preliminary studies to determine if injections of platelet-rich plasma (PRP) can hasten the healing process in injured knee ligaments.

PRP is derived by taking blood from a patient, subjecting it to a process that separates the blood into various components, then harvesting the PRP component and re-injecting it into the same patient. The concentration of platelets is thought to supply important growth factors that promote healing. The process is relatively easy to perform and surprisingly inexpensive.

### INCREASED ATTENTION

PRP is drawing increased attention, but most of it comes as a result of anecdotal reports involving high-profile elite athletes. Among the injuries that have been treated using PRP are those involving the collateral ligament (MCL) and anterior cruciate ligament (ACL), as well

as conditions such as patellar tendinitis and elbow tendinosis. The results have been mixed.

Despite the lack of scientific studies proving a beneficial effect, the number of injections of PRP worldwide in elite and recreational athletes adds up to thousands of injections performed in the United States and Europe. This could translate into millions of dollars spent per year on an unproven treatment.

According to SPRI's Dr. Robert LaPrade, "Science has progressed greatly in the past decade, offering significant promise in the area of PRP, stem cells, and growth factors. However, future studies and additional research are needed so that we can take what we are learning at the scientific level and turn these into realistic, credible treatment recommendations for patients who are under the care of their orthopaedic physician."

With all of the publicity, it is not unusual for patients to demand PRP treatment from their orthopaedists. If they don't get the treatment, many of them will seek other clinicians who will administer PRP, whether its indications are evidence-based or not. These demands put tremendous pressure on physicians to use a treatment for which very few good basic research studies and randomized clinical trials exist.

No randomized clinical trials have been performed to confirm that PRP specifically accelerates MCL healing. Based on the mixed results for ACL and other ligaments, it is difficult to project whether PRP would have a beneficial effect on injured MCLs.

### **MOST COMMONLY INJURED LIGAMENT**

The MCL is the most commonly injured ligament of those supporting the knee, and the incidence of the injury is twice as high in males as in females. MCL tears or ruptures may not heal without intervention. One of those interventions is surgery, which has been shown to accelerate healing and hasten the return to performance. However, surgery is expensive, does not always allow the athlete to return to full performance,

and may be associated with painful complications.

The surgeons and scientists at SPRI, working with the Colorado State University Orthopaedic Research Center, are proposing tests using biological models to determine if the effects of PRP can accelerate MCL healing. The BioMedical Engineering team has extensive experience in studying growth factor effects on musculoskeletal healing.

The specific aims of the study will be 1) to determine if a single dose of PRP at different platelet concentrations can accelerate healing when compared with a saline placebo, and 2) to determine if the highest PRP concentration can accelerate healing when injected at multiple time intervals.

The proposed study has been submitted to the American Orthopaedic Society of Sports Medicine and has received excellent reviews. A pilot study has been initiated and the SPRI/Colorado State research teams expect to have preliminary results early in 2014.



## **Return-to-Play in Athletes Following Ankle Injuries**

A study conducted by SPRI's Dr. Thomas A. Clanton, Lauren Matheny, and their colleagues reviewed objective measures that a physician can use to determine if an athlete can resume activities after an injury. The findings were published in the journal *Sports Health*.

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.

As professional athletes are an integral part of a billion dollar industry,

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*The Dorsiflexion Lunge Test, a test useful for assessing range of motion of the ankle, has the patient place his or her foot perpendicular to a wall and lunge their knee toward the wall. The foot is progressively moved further away from the wall until the maximum range of dorsiflexion is achieved.*





*The Sargent or Vertical Jump Test measures the height the patient can jump from a squat. This mainly tests the athlete's strength (in addition to speed, energy, and dexterity).*



*Balance and proprioception may be evaluated with the Star Excursion Balance Test, where the patient balances on one leg while reaching in defined directions with the other leg.*



*The agility T-Test assesses the patient's ability to change direction rapidly by timing navigation of a T-shaped course.*

(continued from page 11)

the physician often faces pressure from the media, coaches, and the patient to provide medical clearance. With these influences on medical decision-making and minimal guidelines for determining RTP, the physician may make poor decisions. The substantial increase in legal action against sports medicine physicians over the last 20 years has often resulted in multi-million dollar settlements, causing an increase in the cost of malpractice insurance.

### **MOST COMMONLY INJURED SITE**

A previous study revealed that the ankle is the most commonly injured site across 24 different sports. Ankle injuries are especially prevalent in soccer and basketball. The re-injury rate in athletes is highly correlated with premature RTP. However, there is very little available literature to aid the physician in determining RTP following an ankle injury.

The 2012 study in *Sports Health* focused on establishing guidelines to allow an athlete to RTP. The research team reviewed functional tests used at SPRI and the evidence to support them.

Tests used to assess readiness to RTP after injury should take into account the activities specific to the sport. 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. The four categories of functional testing of the ankle should include range of motion, balance and proprioception, agility, and strength. Here are the tests that were used to measure these categories.

### **DESCRIPTION OF TESTS**

The Dorsiflexion Lunge (DFL) Test, a test useful for assessing range of motion of the ankle, has the patient place his or her foot perpendicular to a wall and lunge their knee toward the wall. The foot is progressively moved farther away

from the wall until the maximum range of dorsiflexion is achieved.

Balance and proprioception may be evaluated with the Star Excursion Balance Test (SEBT), where the patient balances on one leg while reaching in defined directions with the other leg.

The Y Balance Test tests certain directions of the SEBT and has been sensitive in screening ankle instability.

The agility T-Test assesses the patient's ability to change direction rapidly by timing navigation of a T-shaped course.

The Sargent or Vertical Jump Test measures the height the patient can jump from a squat. This mainly tests the athlete's strength (in addition to speed, energy, and dexterity).

### **IMPORTANCE OF PSYCHOLOGICAL FACTORS**

Following an injury, between five and 19 percent of athletes experience psychological distress comparable to patients receiving treatment for mental health illness. It is important that psychological factors be considered when clearing an athlete to RTP. Not only can emotions such as loss of confidence, fear, and anxiety adversely affect rehabilitation, but they also increase the risk of re-injury.

Scoring systems that may be used to assess psychosocial factors include the Trait Sport Confidence Inventory (TSCI), State Sport Confidence Inventory (SSCI), and the Injury-Psychological Readiness to Return to Sport (I-PRRS) Scale.

### **MULTIPLE FACTORS IN THE DECISION-MAKING PROCESS**

The decision to allow an athlete to RTP following an ankle injury is challenging and multi-faceted. The team doctor's main priority is the well-being of the patient. Following an injury, the primary focus should be preventing further harm or re-injury to the athlete, while taking into consideration the patient's request for a timely return to their active lifestyle.

Dr. Clanton's research team concluded that functional testing provides objective measures for gauging an athlete's progression through the rehabilitation process. Testing of balance and proprioception, strength, range of motion, and agility, coupled with psychological assessment, evaluates readiness for RTP.

The long-term goal in establishing these guidelines is to prevent bad decisions, lawsuits, and above all, to protect athletes from re-injury.



#### EDUCATION

## Welcome 2013–2014 Fellows

### Nine New Physicians Introduced

This year, nine young orthopaedic surgeons were selected from a field of more than 160 to participate in 12 months of vigorous training in the Steadman Philippon Sports Medicine Fellowship Program. Our 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.

In 2010, we added two fellows to our program when we welcomed the Institute's first Foot and Ankle Fellow and the world's first Sports Medicine Imaging Research Fellow. In addition, we now have three visiting scholars, who are in essence research fellows from other countries. The 11 fellows and visiting scholars are being given a unique opportunity to perform research in their respective areas of interest, including biomechanics research, clinical research, imaging research, and basic science research.

Once every 18 months after that, they will return with other past fellows for further education and to exchange

the knowledge they have gained since completion of fellowship training. The Institute currently maintains a network of more than 190 fellows in communities around the world who serve in academic positions at leading universities and in private practices.

### 2013–2014 STEADMAN PHILIPPON SPORTS MEDICINE FELLOWS

#### Anthony Cerminara, M.D.

Dr. Cerminara graduated summa cum laude from Gannon University in Erie, Pennsylvania. He attended Gannon on a football scholarship and was awarded with NCAA Division II all academic honors. He attended medical school at the State University of New York at Buffalo, where he graduated first in his class. Dr. Cerminara then traveled to Miami to pursue his residency in orthopaedic surgery at the University of Miami/Jackson Memorial Hospital. While in Miami, Dr. Cerminara covered the University of Miami football, baseball, and basketball teams and the Marlins baseball team, and was team physician for a local high school. He also obtained advanced training in musculoskeletal trauma at Miami's Ryder Trauma Center. Dr. Cerminara has moved to Vail with his wife, Sarah, a dermatologist who will be working at Vail Dermatology.

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## 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 2013–2014 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 and foundations for their generous support: **Mr. and Mrs. Milledge Hart, the Fred and Elli Iselin Foundation, Mrs. Mary Noyes, Mr. and Mrs. Jay Precourt, and Mr. and Mrs. Stewart Turley.**

**Front row from left to right:**

Gregory Sawyer, M.D.

Mark Hamming, M.D.

Jared Johnson, M.D.

Michael Ellman, M.D.

Anthony Cerminara, M.D.

Jeffrey Jaglowski, M.D.

Tommy Haytmanek, M.D.

Coley Gatlin, M.D.

**2nd row:**

Tom Hackett, M.D.

J. Richard Steadman, M.D.

Robert LaPrade, M.D., Ph.D.

Peter Millett, M.D., M.Sc.

**Back row:**

Marc Philippon, M.D.

Tom Clanton, M.D.

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**Michael B. Ellman, M.D.**

Raised in Bloomfield Hills, Michigan, Dr. Ellman matriculated at the University of Michigan for his undergraduate studies and medical school training, where he graduated with honors at both levels. As an undergraduate, he spent six months studying Spanish language and culture in Seville, Spain. During medical school, Dr. Ellman earned the Dean's Commendation for Excellence in Clinical Skills and the Art of Medicine, and further developed his medical Spanish skills through work at a clinic in Guadalajara. Dr. Ellman completed his residency training at Rush University Medical Center in Chicago, Illinois. He published several research studies focused on articular cartilage biology and biochemical pathways involved in osteoarthritis, and was awarded the American Academy of Orthopaedics Baxter Healthcare Scholarship for his work and interest in hip cartilage preservation. Dr. Ellman also participated in sports team coverage for the Bulls, White Sox, DePaul men's and women's soccer teams, and area high school football teams. His wife, Julie, works as a pediatric nurse practitioner.

**Jeffrey R. Jaglowski, M.D.**

Born and raised in Erie, Pennsylvania, Dr. Jaglowski attended Mercyhurst College in his hometown, where he majored in sports medicine. Clinical experi-

ence with collegiate athletics over those years led him to certification as an athletic trainer. He pursued graduate studies at Pennsylvania State University in Hershey, where he received his Master of Science degree in anatomy and performed basic science and clinical cancer research for which he received numerous grants. He began medical school at Penn State, where he continued to foster interests in orthopaedic surgery and sports medicine. He was elected a member of Alpha Omega Alpha and graduated with honors. Dr. Jaglowski

completed residency training at the Harvard Combined Orthopaedic Surgery Residency Program and served as chief resident at the Massachusetts General Hospital. He looks forward to a great year in Vail with his wife, Heather.

**Jared Johnson, M.D.**

Jared grew up in the mountains and skiing in Salt Lake City. He attended the University of Utah, where he studied business administration and finance. He then moved to New York City and medical school at Weill Cornell Medical College, where he was awarded the T. Campbell Thompson Award for excellence in orthopaedic surgery from the faculty of The Hospital for Special Surgery. Following medical school, he moved to Los Angeles and completed his residency training at UCLA. During residency, he was involved in several research projects and was published in journals such as *The Journal of Bone and Joint Surgery*, *Journal of Biomechanics*, and the *Journal of Cellular Biochemistry*. He and his wife, Nancy, are excited to head back to the mountains.

**Mark Hamming, M.D.**

Dr. Hamming graduated from Northwestern University in his home city of Chicago, with a B.S. in biology and a minor in Spanish. While at Northwestern, he was named MVP and captain of the swim team, received All-American



honors, and competed at the U.S. Olympic Trials. Dr. Hamming obtained his medical degree at Rush Medical College, where he discovered his interest in orthopaedics. Upon completing medical school, Mark traveled to Duke University for an orthopaedics residency. Throughout his residency, he provided physician coverage for Duke's many varsity athletic teams including football, basketball, and lacrosse. During residency, Dr. Hamming's research focused on ACL grafts. Dr. Hamming has been joined in Vail by his wife, Lesley, and their 8-month-old son, George. Lesley Hamming, Ph.D., J.D., will start her career in Chicago as a patent attorney.

### **Gregory A. Sawyer, M.D.**

Dr. Sawyer grew up in the foothills of western Maine and attended Colby College, where he double-majored in chemistry and biology and graduated summa cum laude. He attended Dartmouth Medical School, where he was inducted into the Alpha Omega Alpha honor society. Following medical school, Dr. Sawyer completed his orthopaedic residency at Brown in Providence, RI. During his time at Brown he served as an assistant team physician for the men's ice hockey and lacrosse teams, as well as for the Providence Bruins. While at Brown, he was involved in multiple areas of research, including biomechanical analysis of different ACL and tibial spine reconstruction techniques, patient outcomes following elbow arthroscopy, and an epidemiologic evaluation of Toradol use in athletes. Following his residency, Dr. Sawyer completed a fellowship in orthopaedic trauma surgery at Rhode Island Hospital. Dr. Sawyer and his wife, Annah, have a three-month-old daughter, Lylah.

### **FOOT AND ANKLE FELLOW**

#### **C. Thomas Haytmanek, Jr., M.D.**

Dr. Haytmanek graduated cum laude from Wake Forest University with a major in chemistry and a minor in physics. He then attended Jefferson Medical College in Philadelphia,

closer to his hometown of Bethlehem, Pennsylvania. After graduating cum laude at Jefferson, he completed his orthopaedic surgery residency at Duke University. During his training he completed research projects published in *The Journal of Bone and Joint Surgery, Clinical Orthopaedics and Related Research, and Foot and Ankle International*. Dr. Haytmanek and his wife, Larisa, have a young daughter, Abigail.

### **GRIFFIN VISITING SCHOLAR FOR CLINICAL SPORTS MEDICINE MRI**

#### **Coley Gatlin, M.D.** (see page 5)

Dr. Coley Gatlin graduated cum laude from the University of Texas at Austin with a B.A. in biochemistry and attended the University of Texas Health Science Center at San Antonio (UTHSCSA), obtaining his medical degree. Next, he completed a UNC-affiliated family medicine residency and primary care sports medicine fellowship in Greensboro, North Carolina. During his residency and fellowship, Dr. Gatlin provided sports coverage for several local high schools, Elon University, and the Burlington Indians (a farm team of the Cleveland Indians).

Thinking the medical training was over, he moved to Kerrville, Texas, and joined a family medicine private practice. He transitioned to full-time emergency room work after realizing he enjoyed acute care medicine and sports medicine more than the geriatric and hospital-based internal medicine required of private practice. Dr. Gatlin provided sideline sports coverage for several local high schools and Schreiner University. Also, he worked with one of the local orthopaedic surgeons to establish a Saturday morning sports clinic. Dr. Gatlin enjoyed his work as medical director for a rural health clinic in Utopia, Texas, for four years. He served one-year terms as vice president and then president of the Kerr-Bandera Medical Society in 2005 and 2006. He returned to UTHSCSA for additional residency training in diagnostic radiology and completed the training in June 2013.

## **Where Are They Now. . . ?**

The graduating class of 2012–2013 Steadman Philippon fellows is busy establishing new careers in orthopaedics.

#### **Tyler C. Collins, M.D.**

Dr. Collins has joined the practice at the CORE Institute in Mesa, Colorado.

#### **Christopher Espinoza-Ervin, M.D.**

Dr. Espinoza-Ervin is practicing at the McBride Orthopedic Hospital and Clinic in Oklahoma City, Oklahoma.

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

Dr. Faucett is establishing his practice at Medical Faculty Associates at George Washington University, Washington, D.C.

#### **Edmund "Edton" A. Ganal, M.D.**

Dr. Ganal has moved to Newport, Rhode Island, and is practicing at the Naval Health Clinic New England.

#### **Jared T. Lee, M.D.**

Dr. Lee is establishing his practice with the Big Horn Basin Bone and Joint clinic in Cody, Wyoming.

#### **Jeffrey J. Nepple, M.D.**

Dr. Nepple is establishing his sports medicine practice at Washington University Orthopaedics in St. Louis, Missouri.

#### **Jack Skendzel, M.D.**

Dr. Skendzel has moved to Woodbury, Minnesota, and joined Summit Orthopedics.

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

Dr. Viens has joined the Lexington Clinic Orthopedics – Sports Medicine Center in Lexington, Kentucky.

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

Dr. Smith is practicing at MedQuest in Greenville, South Carolina.



## A Day in the Life of an International Research Scholar

By Brian Devitt, M.D.

[Editor's Note: Dr. Brian Devitt, of Ireland, recently completed a year as an international research scholar at the Steadman Philippon Research Institute and is now a clinical fellow in orthopaedic sports medicine at Mount Sinai Hospital in Toronto, Canada. Shortly after his stay in Vail, he recorded the events during a typical day at home and at work while at SPRI.]

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

Brian Devitt, M.D.



Photo: Angelica Wedell

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 chief of the department 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.



Photo: John Kelly

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.

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(continued from page 17)

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.



*Fifth grade students from Edwards Elementary School experience hands-on learning about knee anatomy.*



Photo: Angelica Wedell

## SPRI Launches Community Education Outreach

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 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, offered mentoring for middle school science

fairs, provided speakers at school assemblies, and sponsored two summer high schools 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."



#### SPORTS AND WELLNESS

## Winter Injury Prevention

Christopher M. LaPrade, Evan W. James, and Robert F. LaPrade, M.D., Ph.D.

**I**n anticipation of winter, it is important to remember that while many winter sports are enjoyable, they can also be dangerous at times. Here in Vail, our picturesque mountains offer some of the best terrain and conditions in the world for skiing and snowboarding. However, hazards such as trees, steep terrain, cold temperatures, and large crowds present increased risks and hidden dangers. Other popular winter sports, such as ice hockey and skating, require certain precautions to minimize the risk of injury. To help you stay active all season, here are some general recommendations to prevent winter sports-related injuries, whether it's here on the mountain in Vail, on the hockey or skating rink, or in your own backyard.

The first step in preventing winter sports injuries is to dedicate time during the offseason to develop a solid fitness foundation. Committing to a regular exercise program throughout the year, with a focus on building strength, endurance, balance, and flexibility, will ease the transition into winter sports as your body adjusts to new and increased



Photo: John Kelly

demands. For skiing and snowboarding, leg and core strength is most important to keep you fresh during long days on the mountains. Making time to exercise even a couple times a week now will pay off considerably throughout the winter months.

Other potential problems during winter activities include frostbite, hypothermia, and dehydration. Frostbite can permanently damage skin if not recognized and treated in a timely manner. Signs of frostbite include first reddening, then graying in the color of the skin. Frostbite most commonly affects the face, ears, fingers, and toes. Proper equipment such as goggles, moisture-wicking socks, and warm, waterproof gloves can help prevent frostbite.

In addition, hypothermia may occur while on the mountain. In order to maintain your core body temperature, be sure to dress in layers of moisture-wicking material underneath your snow pants and ski jacket. Also, on especially cold days, make sure to take frequent breaks in warming houses or chalets to rest, eat, and warm back up.

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Photo: John Kelly

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Finally, dehydration is another common risk during the winter season. The bulky clothing that is designed to keep you warm on the mountain or safe on the hockey rink may cause you to lose excessive moisture in perspiration. When excessive perspiration is combined with high elevation and infrequent water breaks, your body is at a very high risk for dehydration. As dehydration sets in, athletic performance and endurance declines. Therefore, proper hydration with water or carbohydrate-rich beverages is essential before, during, and after winter activities. Once thirsty, it is already too late to adequately replace fluids.

There are several important safety precautions to keep in mind when skiing. First, make sure you know the rules of the mountains. The most important rule to remember is that the people in front of you have the right of way. They cannot see you approaching, so keep your speed under control in order to protect both your own safety and the safety of others on the mountain. Also, make sure you wear the proper protective equipment. Most importantly, this means wearing a helmet — regardless of your ability level or the types of terrain you plan on skiing. Remember, the mountain will be filled with skiers and snowboarders of all ages and abilities. Wearing a helmet will help prevent potentially devastating and permanent traumatic head injuries. Also, make sure that your ski bindings are adjusted by a trained professional to release appropriately and that they are compatible with your ski boots. The release setting on bindings determines the amount of torque

required to make your ski release properly during a crash. While expert skiers might wish to have a high binding release setting in order to pass through extreme terrain, beginners need a lower setting so that their skis will release more easily.

Snowboarding possesses many of the same inherent risks as skiing. Like skiing, it is important to know the rules of the mountains. Snowboarders must realize that the people ahead of them cannot see behind them, and use caution when near groups of people. A helmet is important to avoid head injuries, regardless of where you plan on riding. Choose bindings and boots with the help of a trained professional. Softer bindings and boots are usually preferred for beginners and intermediates in order to provide additional comfort and give while riding. Make sure that the boots and bindings are tightly secured. Beginner snowboarders may want to wear wrist guards to prevent wrist fractures while breaking a fall. Some brands offer gloves with wrist guards built in, which helps make wearing protective equipment convenient and fashionable.

Ice hockey and skating are other popular winter activities. Whether you plan to skate on an outdoor rink, at an open skate on an indoor rink, or in youth or recreational hockey leagues, it is important to be aware of others skating around you. Just like skiing and snowboarding, a helmet is an essential piece of equipment that helps to prevent traumatic head injuries during a fall or during collisions with posts or boards. In addition, if you plan to participate in a hockey league, it is especially important to wear a mouth guard to prevent jaw, brain, and dental injuries. Finally, make sure that your hockey equipment is appropriately sized, because loose shin pads, breezers, elbow pads, and shoulder pads are less effective at preventing injuries.

If your plans bring you to Vail this winter, we wish you a season filled with many new memories and, most importantly, a safe time on the mountain.





## Scientific Advisory Committee Member, Dr. John Feagin, Named Honorary Member of ISAKOS



Retired Col. John Feagin Jr., M.D., was named an ISAKOS honorary member 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 SPRI's — 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.

ISAKOS will celebrate its 20th anniversary in 2015 at a biennial congress in Lyon, France.



## American Academy of Orthopaedic Surgeons Recognizes Award-Winning Video

Former SPRI fellow and current chairman of the Multimedia Education Center Committee, American Academy of Orthopaedic Surgeons, Dr. Kevin D. Plancher, recently announced that the teaching video, "Shoulder Arthrodesis: Surgical Technique," will be acknowledged as an Award Program for presentation in the Orthopaedic Video Theater during the 81st Annual Meeting to be held March 11–15, 2014, in New Orleans, Louisiana. The video was produced by Barry Eckhaus and the authors are Ryan J. Warth, M.D., and Peter J. Millett, M.D., M.Sc.

According to Dr. Plancher, "We are grateful to you and your co-authors for your commitment to create high quality orthopaedic video education. The committee appreciated reviewing your work, it is a very well executed program. Your program will have an Award Winner designation in the Orthopaedic Resource Catalog and will have its own booth in the Orthopaedic Video Theater."



## FREQUENTLY ASKED QUESTIONS

**WHAT PROJECTS ARE HIGH ON SPRI'S LIST OF PRIORITIES FOR 2014?**

A few of the many research and education projects at our headquarters in Vail, Colorado, are now under way or about to be launched. Our supporters take pride in knowing they are helping the scientists and surgeons working on these and other projects transform the understanding of injury prevention and joint preservation into practice.

**Preventing sports injuries**

Sports injuries constitute 10 to 19 percent of all acute injuries seen in emergency departments. According to the Centers for Disease Control and Prevention, more than 2.6 million children and teens are treated in emergency departments in the U.S. each year for sports and recreation-related injuries.

- We are currently in the fourth year of a five-year study to screen youth hockey players for femoroacetabular impingement (FAI), a leading cause of hip pain and disability. The data will help in the design of a program to prevent FAI and the subsequent development of osteoarthritis.
- In 2014, we will enter the next two phases of a study of tears to the anterior cruciate ligament (ACL), a top 10 injury among youth snowboarders. A team at SPRI will evaluate two possible preventative steps by measuring the effects in the laboratory of systematic changes of the two most important factors of ACL load in the snowboarder's leading leg. This will be followed by a full study of 15–20 riders snowboarding at a terrain park on the mountain to evaluate the preventative measures.
- With support from our donors, SPRI is launching a study of the causes and mechanisms of injuries in youth skiers. As with the other studies, our ultimate goal will be to establish preventative measures.

**Training the best minds from near and far (page 13)**

SPRI is currently accepting applications for our Fellowship Program, one of the most prestigious — and rigorous — academic opportunities of its kind. Each year, more than 160 graduates from orthopaedic residency programs compete for:

- Six fellowship positions in orthopaedic surgery sports medicine
- One fellowship position in the Griffin Visiting Scholar for Clinical Sports Medicine MRI (page\_\_)
- One fellowship position specializing in the foot and ankle

For 12 months, each successful candidate will receive clinical education and conduct high-level research in SPRI's world-class facilities. To date, more than 190 fellows have completed our program and gone on to fill leadership roles in sports medicine in the United States and abroad.

Philanthropic support is required to fund the education they receive and the research they conduct, both of which they will share with the world.

**Using biological models to determine the efficacy of platelet-rich plasma (Page 5)**

Anecdotal reports suggest injections of autologous growth factors found in platelet-rich plasma (PRP), a concentrated mix of platelets derived from a patient's own blood, may delay or even eliminate the need for future joint replacement by stimulating healing in damaged ligaments.

In the first phase of this study, SPRI identified the optimal concentration of PRP. Now, we are determining whether multiple injections over time (in contrast to a single dose) accelerate the healing process.

We must secure funding in order to finish all data analysis concerning the multiple-dose method between January and March 2014. The results of this novel study will have a significant impact on the use of PRP in clinical practice.

## Investigating the complexities of multi-ligament knee injuries to improve treatment outcomes

Multi-ligament knee injuries, often associated with knee dislocation, pose unique challenges for restoration of pre-injury joint health and function. A substantial number of knee multi-ligament reconstructions do not result in acceptable postoperative outcomes.

The four primary ligamentous structures implicated in such injuries — the anterior and posterior cruciate ligaments, and posteromedial and posterolateral corners — have been studied individually in detail. Our internationally-based research team will leverage its extensive research on the individual structures to define surgical principles that will optimize multi-ligament reconstruction techniques.



## Steadman Philippon Golf Tournament

The Vail Valley Medical Center 2014 Steadman Philippon Research Institute Golf Classic Presented by RE/MAX, LLC Set for August 14, 2014.

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

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



Photo: Barry Eckhaus

Since 2004, the Institute has raised more than \$1.3 million from this golf tournament to support its research programs. Renowned course architect Jim Engh, Golf Digest's first-ever "Architect of the Year," designed the course that protects a private oasis of 220 acres, effectively complementing the 40,000 surrounding acres of dedicated open space.

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

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







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

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## Mark Your Calendar:

**AUGUST 14, 2014**

Vail Valley Medical Center 2014 Steadman Philippon Research Institute Golf Classic, presented by RE/MAX, LLC at Sanctuary, Sedalia, Colo.

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



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