Winter 2009

Foundation News

Steadman◆Hawkins Research

photo: John Kelly

FOUNDATION FOCUS

Donors Demonstrate Record-Setting Support During 2008

By Mike Egan, Chief Executive Officer, Steadman◆Hawkins Research Foundation

We want to thank you all personally for your tremendous, record-setting support in 2008. We've been overwhelmed by the generosity of our donor base, especially in light of difficult economic times. We finished 18 percent higher in revenues and donor support in 2008 than in 2007 and 28 percent ahead of support in 2006.

Between 2006 and 2008, for example, sound management practices and even greater efficiencies helped us reduce the Foundation's overhead rate by 11 percent.

What does that mean for you? It means that for every dollar received from donors, 68 cents goes directly to research. Other medical research programs have overhead costs significantly higher. We believe Steadman-Hawkins has the highest percentage of money spent directly on research of any accredited orthopaedic program, whether independent or university-based.

We have been able to reduce our expenses with sound management practices and a focus on efficiency. As your contributions have allowed us to grow our science and education programs (by adding a new science department and increasing the number of visiting scholars), we have kept our Foundation

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INSIDE

Tax-Free Gifts From Your IRA

As you think about tax planning for the coming year, remember to take advantage of Congress' reauthorization of legislation allowing you to make a tax-free charitable gift from your IRA for 2009.

If you are at least 70½ years of age or older, you can make a gift from your IRA directly to the Foundation. While you cannot claim a charitable deduction, you do not pay federal income tax on the amount, so your gift is tax-free.

To Qualify:

- You must be at least 70½ years of age at the time of your gift.
- Your gift must be transferred by your plan provider directly to the Foundation.
- Your gift can be directed from a traditional IRA or Roth IRA.

Benefits:

- You can give up to $100,000 for the 2009 tax year (if your spouse has a separate IRA account, each of you can give up to $100,000).
- Your gift will be excluded from your gross income for federal income tax purposes.
- Your gift is not subject to the 50 percent deductibility rule or the 2 percent rule.

Please contact John McMurtry, Vice President, Program Advancement, at john.mcmurtry@shsmf.org or 970-479-9797 if you have any questions about how to make your gift.

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staff overhead costs relatively neutral. The bottom line is that we're being more efficient in the management of the Foundation than ever before.

IMPORTANT ACCOMPLISHMENTS

With your continued support, we have made several organizational improvements during the past 24 months. They include structural changes, new policies and procedures in all departments, and the creation of a fourth area of science. We have also established the position of Chief Scientific Officer, and William G. Rodkey, D.V.M. has been appointed to serve in this position. All of this has been implemented to prepare us for continued excellence as we carry out our mission.

In 2008, the Foundation set records for publications and presentations, but we are not just about grading ourselves with numbers. For example, Dr. Marc Philippon published a landmark study on two-year hip arthroscopy outcomes in the prestigious *Journal of Bone and Joint Surgery*. Dr. Philippon and our clinical research group are literally teaching the world about advancements in hip arthroscopy.

The Foundation has also initiated an important study in Basic Science to determine whether adding an adult's own bone marrow stem cells can improve cartilage regeneration.

The Gift That Won't Affect Your Cash Flow

What if we could describe a way to make a gift today that
- wouldn't affect your cash flow,
- could let you breathe a little easier in these uncertain times, and
- could make you feel good knowing you could continue your commitment to the Foundation's research, treatment and education?

We can show you how to do just that by considering a charitable bequest to the Foundation.

Without a doubt, your current gifts are vital to our research into the causes, prevention, and treatment of orthopaedic disorders, and we thank you. But if you cannot make as significant a gift this year as you normally would, the solution may be to move forward with a bequest to the Foundation in your will or revocable trust.

This is good planning that will allow you to design your lifestyle amid uncertain times, yet know that in taking these actions, you ensure our future as a world-class organization and our opportunity to change so many lives.

How to Make Your Gift Last

You can designate a specific bequest of a sum or an asset. Many people choose to specify a percentage of the balance of the remainder of their estate after they have arranged their bequests to loved ones.

Your bequest can be directed to an area of particular interest to you, and we encourage you to call us as you work with your attorney so we can give you the proper language to ensure your gift is directed exactly as you want. When your plans are complete, we invite you to let us know so we can make you part of our Founders' Legacy Society – a group of Foundation friends who have demonstrated their commitment to our work by giving beyond their lifetimes.

Giving can take many forms, and if a charitable bequest is how you want to continue your giving this year, please contact John McMurtry, Vice President, Program Advancement, at john.mcmurtry@shsmf.org or 970-479-9797.

Dr. William Rodkey, Dr. Richard Steadman, and Karen Briggs were among the authors of the lead article in the July 2008 issue of *Journal of Bone and Joint Surgery.* Based on research conducted both at Steadman-Hawkins and at other sites around the country, the article describes long-term results on a collagen implant for meniscus regeneration.

In the Biomechanics Research Laboratory, our dual-plane fluoroscopy research received the second-highest award from the American Orthopaedic Society for Sports Medicine for groundbreaking work in further understanding the bones in the shoulder, their movement, and their relationship to each other.

The Foundation's Imaging Research department, which began in late 2008, will be the first in the world solely dedicated to improving imaging diagnosis in sports medicine.

In education, we added Visiting Scholars from Europe and Brazil to our Fellowship Program. We also laid the groundwork for the first Radiology Fellowship in Imaging Research, and Dr. Richard Steadman and Dr. John Feagin published a book titled T*he Crucial Principles in Care of the Knee.*

FOCUSED MESSAGE

In communications, we have emphasized the technical nature of our research and explained why the work of the Foundation is unique — specifically what it means to you. Our message to supporters, potential contributors, and the scientific community focuses on (1) evidence-based medicine, (2) the Foundation as an international center for research and education, and (3) our goal of keeping people active. This emphasis has allowed us to achieve significant increases in corporate and donor relationships. All three messages have been well received and continue to illustrate the Foundation's uniqueness.

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◆Hawkins Research Foundation.

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Arthroscopy Accepts First Microfracture in the Shoulder Research

Congratulations to Dr. Peter Millett and the Clinical Research team headed by Marilee Horan. For the first time ever, an article will be published on microfracture in the shoulder. The article, titled "Outcomes of Full-thickness Articular Cartilage Injuries of the Shoulder Treated with Microfracture," will appear in an upcoming issue of the journal *Arthroscopy*. The authors of the article are Peter J. Millett, M.D., M.Sc.; Benjamin H. Huffard, M.D.; Marilee P. Horan, M.P.H.; Richard J. Hawkins, M.D.; and J. Richard Steadman, M.D.

Dr. Peter J. Millett Named Principal Reviewer

In January, Steadman◆Hawkins Research Foundation Board member Dr. Millett was named a principal reviewer for the prestigious *American Journal of Sports Medicine.* Based upon his performance of reviews for the journal during 2008, his name will appear on the masthead for the next 12-month cycle beginning in March 2009.

photo: John Kelly

Peter Millett, M.D.

The number of submissions to AJSM continues to increase. In 2008 the submissions of original articles numbered over 880. As the selection process becomes ever more difficult, it is important to have dedicated reviewers to provide high-quality evaluations of submitted papers. In the minds of submitting authors, Dr. Millett's words will be the face and voice of the journal.

The *American Journal of Sports Medicine* is a peer-reviewed scientific journal, first published in 1972. It is the official publication of the American Orthopaedic Society for Sports Medicine (AOSSM) and is ranked 4th out of 72 sports sciences journals in *Thomson Scientific's 2007 Journal Citation Reports*. The journal acts as an important forum for independent orthopaedic sports medicine research and education, allowing clinical practitioners the ability to make decisions based on sound scientific information.

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RESEARCH UPDATE

Siemens and Steadman-Hawkins Take Sports Medicine Imaging Research to the Next Level

3T MRI TECHNOLOGY POISED TO ENHANCE PATIENT DIAGNOSIS, TREATMENT, AND POSTOPERATIVE EVALUATION

Siemens Healthcare (www.siemens.com/healthcare) and the Steadman◆Hawkins Research Foundation (www.shsmf.org) have formed a strategic alliance that will add 3.0 Tesla (T) magnetic resonance imaging (MRI) technology to the Foundation and allow its clinicians and researchers better access to advanced sports medical imaging.

"Imaging has become a vital part of sports medicine for diagnosis, treatment, and postoperative evaluation," said J. Michael Egan, chief executive officer, Steadman◆Hawkins Research Foundation (SHRF). "Patients from all over the world are treated at Steadman-Hawkins, and they return for an assessment of their progress. With this strategic alliance, we look forward to all of the new avenues in imaging research that we can explore."

"With the strongest magnet field strength used clinically, the MAGNETOM Verio can be used for many applications, including neurology and functional neuro-evaluation, orthopedic and cartilage assessment, breast, vascular, and cardiac imaging," said Jeffrey Bundy, vice president, Magnetic Resonance, Siemens Medical Solutions USA, Inc. "But we are especially honored to join with the Steadman◆ Hawkins Research Foundation to advance the field of orthopedic imaging and sports medicine research."

Siemens MAGNETOM® Verio is a 3T MRI system with a 70 cm open bore and Total imaging matrix (Tim™) technology, the only system on the market today that combines all of these attributes into one solution. The MAGNETOM Verio represents a new class of MRI technology that increases access to advanced diagnostic capabilities and delivers high-field imaging to many patients who could not benefit from the technology before.

Once the MAGNETOM Verio is installed at the Foundation, Steadman-Hawkins will use the data collected from it to test and validate new software being developed

Ribbon-cutting ceremony dedicating the Siemens MAGNETOM Verio 3T MRI machine.

Left to Right: Drs. Charles Ho and John Feagin; Lyon Steadman, CEO, Steadman-Hawkins Clinic; Walter Märzendorfer, CEO of Siemens Medical Research; Foundation Board member Cindy Nelson; and Foundation CEO Mike Egan.

Photo: Joe Kania

specifically for orthopaedic sports medicine and research being conducted in Vail. Researchers at the Foundation will then analyze the imaging data, compare it to their surgical data, and determine whether they can match the images with actual surgical observations.

For instance, researchers will be able to evaluate physiology of cartilage tissue and determine the health and regeneration of that tissue in a totally noninvasive way, before and after treatment. Until now, a doctor would look inside a joint and, perhaps, take a biopsy just to evaluate the results of an operation or to measure progress. If the patient happens to be an athlete, in many instances it will be possible to determine the status of an injury without surgery and without keeping the player off the field until he or she recovers from the diagnostic procedure.

As the newest area of research at Steadman-Hawkins, Imaging Research joins the Foundation's current departments of Basic Science Research, Clinical Research, and the Biomechanics Research Laboratory. All four departments will be integrated into the Foundation's Education and Fellowship Program.

The MAGNETOM Verio was installed at the Vail Valley Medical Center at the end of 2008. The Steadman-Hawkins Clinic is teaming with the Foundation to establish a new fellowship for sports medicine radiology, as well as developing specific clinical research programs for the hip, shoulder, and knee, in conjunction with Siemens.

ABOUT SIEMENS HEALTHCARE

Siemens Healthcare is one of the world's largest suppliers to the healthcare industry. The company is a renowned medical solutions provider with core competence and innovative strength in diagnostic and therapeutic technologies, as well as in knowledge engineering, including information technology and system integration. With its laboratory diagnostics acquisitions, Siemens Healthcare is the first fully integrated diagnostics company, bringing together imaging and lab diagnostics, therapy, and healthcare information technology solutions, supplemented by consulting and support services. Siemens Healthcare delivers solutions across the entire continuum of care – from prevention and early detection, to diagnosis, therapy, and care. Additionally, Siemens is the global market leader in innovative hearing instruments. The company employs more than 49,000 people worldwide and operates in 130 countries. Further information can be found by visiting http://www.siemens.com/healthcare.

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Fact Sheet

Siemens MAGNETOM Verio 3T MRI System and new area of study, "Imaging Research"

General Facts:

- Steadman◆Hawkins Research Foundation unveiled its new MRI scanner, a Siemens MAGNETOM Verio 3.0 MRI System, on December 5, 2008.
- The scanner, manufactured by Siemens Medical Solutions, operates at a field strength of 3.0 Tesla — twice that of most conventional MRI scanners used for orthopaedic imaging.
- The MAGNETOM Verio 3.0 will assist the Foundation in becoming a world leader in sports medicine imaging research, a new area of research at the Foundation.
- Charles Ho, Ph.D., M.D., of the Steadman◆Hawkins Research Foundation Scientific Advisory Committee, is one of the world's leading MSK (musculoskeletal) radiologists and has agreed to become the Director of Imaging Research at the Foundation. He will also be appointed to Siemens' advisory board for orthopaedic imaging.
- Siemens announced the MAGNETOM Verio 3.0 in October of 2007 and it is the only large-bore 3 Tesla MRI scanner on the market. It has a 70 cm bore, allowing it to accommodate larger patients, with a table limit of 550 lbs.
- The MAGNETOM Verio 3.0 takes up the same amount of space as less powerful units, but operates at twice the field strength.

Application in Sports Medicine:

- Steadman◆Hawkins Research Foundation will design imaging data collection forms and begin collecting data on patients that will be compared with surgical findings.
- The goal is to gauge accurately and noninvasively the severity of injuries using digital imaging.
- Additionally, the hope is, through validated research, to be able to track the healing process using imaging research produced by the scanner and collected at the Foundation.
- To support this research initiative, Siemens has agreed to fund this country's first clinical sports medicine imaging research fellowship.

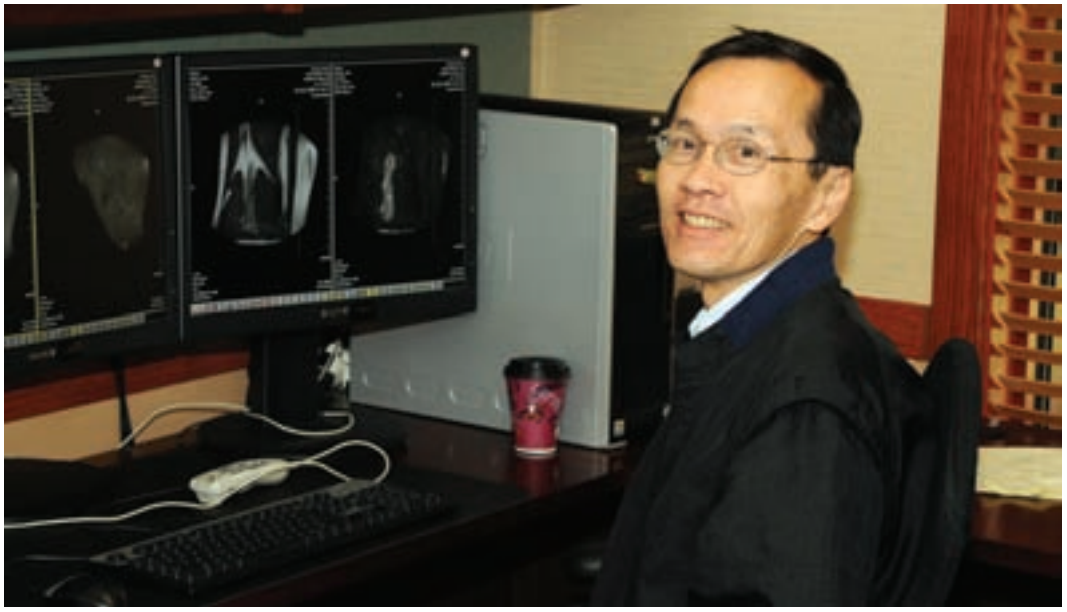

Photo: Tage Plantell

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

An Interview With Dr. Charles Ho, Director of Imaging Research, Steadman◆Hawkins Research Foundation

Charles Ho, Ph.D., M.D., one of the world's leading orthopaedic sports medicine imaging experts, was recently named Director of Imaging Research at the Steadman◆Hawkins Research Foundation. His appointment, combined with state-of-the-art 3-T imaging technology, provides what Dr. Ho describes as a "perfect storm" for Steadman-Hawkins Clinic patients and for research conducted by the Foundation. Here are Dr. Ho's comments made during a recent conversation with *Steadman◆Hawkins Research Foundation News*.

What are the limitations of traditional imaging techniques such as x-rays and ultrasound?

Dr. Ho: "With x-rays, you are not able to see soft tissues (muscles, ligaments, tendons) well. Ultrasound allows you to see soft tissues better than x-rays, but it involves a much more localized exam. It does not provide a comprehensive view of a joint or other body part."

What can MRIs detect that other diagnostic techniques may not be able to recognize?

Dr. Ho: "In orthopaedic sports medicine, the gold standard for imaging is the MRI (magnetic resonance imaging). It allows us to see bones, bone structure, and the health of bone. But equally important, MRIs allow us to see inside joints, including cartilage, menisci, and soft tissue such as tendons, ligaments, and muscles."

Is all MRI technology the same?

Dr. Ho: "No. There is a whole spectrum of commercially available MRI machines. They vary from very "low-field" systems all the way up to high-field systems, such as the Siemens 3.0 Tesla MRI scanner. With a low-field scan, what you see is probably real. But if you don't see something, such as a defect in chondral tissue, a torn meniscus, or a torn muscle, it may not mean a problem doesn't exist. It might not be visible because of the scanner's limited resolution. The higher the field strength provided by the scanner, the more signal you get, the faster the scan, and the higher the resolution. It can see things low-field scanners can't see."

What kind of scanner is used at Steadman-Hawkins?

Dr. Ho: "Since December of 2008 we have had a fully-installed, ready-to-go Siemens 3T scanner, which is the most advanced scanning technology in the world. And we have developed a strategic alliance with Siemens Medical Solutions, which is allowing us to validate its newest imaging technology."

(Editor's note: 3T technology has been available for several years, but its use in a clinical setting has not been validated nor widely available in the field of sports medicine. The Foundation is testing and validating new software developed specifically for the type of research being conducted at Steadman-Hawkins.)

How important is the physician who interprets an MRI scan?

Dr. Ho: "Once you have the results of a scan, regardless of the quality, interpretation of the results depends on the experience and comfort level of the person reading the scan. All areas of medicine are so specialized and developing so rapidly, it is very difficult for any single doctor to be familiar with each condition. Even within a specialty like orthopaedics or radiology, it is best to have someone who is familiar with, interested in, and comfortable with sports medicine, for example, to get the most out of an exam. A generalist may not be the best person to interpret the results of a scan compared to someone who is focused, experienced, and who wants to help advance an understanding of this particular area of medicine."

What kinds of injuries present the greatest challenge in terms of diagnosis and treatment?

Dr. Ho: "There are several, but one that comes to mind is damage to articular cartilage (the tissue that covers the surfaces of bones). Not long ago, even with good quality MRIs, articular cartilage was not being routinely evaluated or reported, not because you couldn't see it, but because the examiner was not aware that the tissue could have been seen and that it was important to evaluate."

> "With our new imaging capabilities contributing to patient evaluation and treatment, we may be able to stabilize, arrest, or reverse the degeneration of tissue before a tear or defect in a joint occurs."

What are the implications of the new Imaging Research department for Steadman-Hawkins doctors and patients?

Dr. Ho: "The imaging system will be a huge boon to the doctors at the Steadman-Hawkins Clinic because they will be able to add imaging data to physical exams and laboratory tests. The 3-T imaging system allows us to evaluate the health of joints, bones, and soft tissue around joints, and we can do this noninvasively. Not only can that information be used to diagnose, manage, and treat an injury or condition, we're also able to evaluate a patient's response to treatment. Patients will be able to get a more comprehensive picture of what is going on with a joint or body part, receive a more accurate diagnosis, get more

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photo: John Kelly

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focused treatment, and see how well they respond.

What are the implications of Imaging Research for research being conducted by the Foundation?

Dr. Ho: "Until now, imaging has not been included in the Foundation's already massive database. By incorporating the results of imaging into that database, there will be a stronger tie to what happens in the Clinic. In fact, what happens in the Clinic is the database. Now we will be able to see how imaging has influenced treatment and outcomes.

"We are now knocking on the door of a whole new area of treatment. With our new imaging capabilities contributing to patient evaluation and treatment, we may be able to stabilize, arrest, or reverse the degeneration of tissue before a tear or defect in a joint occurs. We hope we can contribute to understanding, developing, and validating the type of diagnosis and treatment that no one has been able to do previously."

Let's go back to something you said earlier. What did you mean by the term "perfect storm" for both Steadman-Hawkins patients and the Foundation's research efforts?

Dr. Ho: "I mean that at a single place — the Steadman-Hawkins Clinic and the Research Foundation — a person can benefit from the very best combination of world-class physicians, state-of-the-art equipment (including cutting-edge imaging capabilities); information obtained from a long-standing, comprehensive patient database; and proven rehabilitation protocols. This combination of people, technology, information, and facilities makes it possible for those at Steadman-Hawkins to diagnose, treat, and evaluate the response to treatment of any sports or occupational injury or musculoskeletal condition, whether caused by a traumatic event or overuse. The term to describe this capability may be trite, but for the patient it's a perfect storm."

photo: John Kelly

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Triple Play for Orthopaedic Diagnosis: Thorough Examination, Cutting-Edge Imaging Technology, Accurate Interpretation

The Foundation recently installed a 3-Tesla (3T) magnetic resonance imaging system from Siemens Medical MR. This system is unique in that it is the most technically advanced system for orthopaedics in the world, according to Mike Egan, the Foundation's Chief Executive Officer.

"We are grateful that Siemens Medical MR has chosen Steadman-Hawkins to be its partner for clinically validating their latest technologies," says Egan. "We were also pleased to have hosted the president of Siemens Magnetic Resonance Division, Walter Märzendorfer, who came from Germany for our ribbon-cutting ceremony. Walter is personally interested in our research and very supportive of our new relationship."

THREE STEPS

The process of diagnosing sports injuries has become extremely important during the past several years. An accurate diagnosis is achieved through these three crucial procedures:

Siemens MAGNETOM Verio 3T MRI machine

Photo: Siemens Healthcare

"The first is an excellent physical examination conducted by an orthopaedic surgeon," says Egan. "I am confident everyone will agree that we conduct the very best physical exams in the world of sports medicine. All of our physicians are trained and practice the latest scoring and grading methods in their exams. We also compare the data from our exams to our database of exams, for that particular joint, to ensure the highest quality control.

"The second is the image created by the technology being used," he continues. "There is a vast difference in available technology used to diagnose injuries. The *New York Times* quoted Dr. John Kennedy at the Hospital for Special Surgery as saying the difference in various imaging systems in this country is as great as the difference between black and white television and HDTV. At Steadman-Hawkins, we now have the absolute latest technology for imaging."

The third critical area involved in a proper diagnosis is the radiologist's interpretation (or read) of the image. "The *Times* article pointed out that there are significant differences in the skill levels of radiologists. In many cases, reads are performed by a general radiologist who has no specialized training. At Steadman-Hawkins, our specialty is musculoskeletal expertise."

DR. CHARLES HO NOW AT STEADMAN-HAWKINS

The Foundation is very fortunate to have one of the premier musculoskeletal radiologists in the world—Charles Ho, Ph.D., M.D. Dr. Ho specializes in and reads only musculoskeletal images. Our patients now get the best possible radiological reads of their diagnostic images because of our advanced technology and Dr. Ho's specialized expertise.

"We are calling this examination-imaging-image read process our Triple Play for Orthopaedic Diagnosis," concludes Egan. "While our patients already receive the most accurate diagnosis possible, we are equally excited about our future ability to diagnose the health of a person's cartilage and soft tissue in a noninvasive manner. Clinically validating this process is the genesis for our imaging research collaboration with Siemens and will be a very important contribution to the field of orthopaedic medicine around the world."

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Reggie Crist skiing in Haines, Alaska, four months post-surgery.

PATIENTS IN THE NEWS

Reggie Crist: Skiing at the Top of the World — From Icon to Injury and Back

By Jim Brown, Ph.D., Executive Editor,
Steadman◆ Hawkins Research Foundation News

In the world of skiing, words such as icon, pioneer, and superstar have been used to describe Reggie Crist. But on October 15, 2005, there was a different word to describe the world-famous skier: injured.

"I was surfing in Hawaii and got slammed sideways onto a reef," Reggie remembers. "That had happened many times, but this time it was different. It was like someone had whacked me with a ball-peen hammer as hard as he could, and the pinpoint impact went straight from the outer part of my hip bone to the socket."

For ordinary people, this event would have been unfortunate and painful, but not a life-changing event. However, Reggie Crist is not normal. He was a member of the United States Ski Team from 1986 to 1996. He has won multiple gold, silver, and bronze medals in ski cross, an X Games and 2010 Olympic event, and he is one of the world's premier "big mountain" skiers who stars in Warren Miller-produced ski films.

"When I finished ski racing in 1996," says Reggie, "I wanted to do something different. I had raced the world's most difficult downhill courses and that was an amazing experience, but I had never stood on the podium and received that gold medal. By most standards, I had a successful career, but I was frustrated."

BROTHER ACT

"My brother Zach and I had spent our whole lives skiing," he continues. "We knew we were good at it, but we needed to find a new way to express ourselves. About that time, ski cross was gaining popularity through the X Games. (Ski cross is an event that combines timed trials and head-to-head racing over courses that can be as treacherous as they are demanding.) Zach and I had a seven-year run of consecutive podium finishes, capped in 2005 when we

finished first and second. That was unquestionably the pinnacle of my ski-racing career."

But Reggie says his greatest overall achievement has been to maintain his passion for his job, which is the sport of skiing. "I started as a traditional ski racer, which led to ski cross, and now my focus is on big mountain skiing in Alaska."

Big mountain skiing is a broad term that refers to skiing in places where other (i.e., "normal") skiers don't ski. "There are steep grades, long runs, no gates, and exposure to rocks and crevasses," Reggie explains. "The best way to describe big mountain skiing is that when you're standing at the top of a run, you can't see past the first turn because the mountain rolls away." For those not familiar with the sport, big mountain skiing looks like people about to fall off the face of the earth.

Although Reggie finished second in an X Game event after being injured, he never felt right. He went through periods of feeling okay, then not so good. He had trouble putting weight on his leg. "I can't keep doing this," he remembers saying to himself. "Skiing is the one thing I'm getting paid to do, and I can't do it."

"A GOOD HIP DOCTOR"

To complicate matters, he couldn't get an accurate diagnosis. He went to doctor after doctor, but none of them could give him an answer. Then a friend who had had successful knee surgery at the Steadman-Hawkins Clinic told him about a guy there who was supposed to be "a good hip doctor." That "guy" turned out to be Dr. Marc Philippon, widely recognized as one of the most skilled orthopaedic surgeons and hip specialists in the world.

"I made an appointment, underwent some tests, and within 24 hours had gotten a diagnosis of a torn labrum," says Reggie. "Finally, I was talking to someone who knew what had happened to me. They told me exactly how they would fix it, how long recovery would take, and what I would be able to do as a result of the procedures they recommended."

"We can do this ten days from now," said Terie Holmquist, R.N., M.S., ANP-C, Dr. Philippon's nurse practitioner, "and you'll be skiing again in two months."

Reggie scheduled the surgery, made his plane reservations, and flew into Grand Junction, Colorado, on his way to Vail. Then

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photo: John Kelly

"I thank Terie and Dr. Philippon for giving me the most important thing in my life, which is my health, and the ability to enjoy my life at the highest level."

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he had what he calls a moment of panic. "You know, this thing doesn't really hurt that much," he thought. "I'm going to blow this thing off, get back on that plane, and not go through with the surgery." Then he had a change of mind (or maybe heart), decided to follow Terie's advice, and headed to Vail "to get this thing done."

"She was the one who never wavered," he says. "She personally cared about the decision I was making and was the one who instilled in me the confidence to trust the physicians at Steadman-Hawkins.

"When I finally arrived at Steadman-Hawkins, I knew I would be getting the best doctors in the world," says Reggie. He underwent left hip arthroscopy to repair the torn labrum, acetabular microfracture, osteoplasty, and acetabular rim trimming on December 12, 2006. All are procedures that were either developed or refined as a result of research conducted at the Steadman◆Hawkins Research Foundation.

photo: John Kelly

"WHAT HAVE I DONE TO MYSELF?"

When he woke up after surgery, he remembers the pain, the watermelon-like swollen leg, and thinking, "What have I done to myself? Is this really what I wanted?" But after the initial doubts, he was surprised and pleased that he hit every marker of recovery that Dr. Philippon and Terie Holmquist had predicted.

"In two months I was back on skis," he recounts. "After another seven weeks I was in Alaska, probably skiing better than ever before. Today, I can do anything I want. I feel some mild clicking in my hip, but no pain. I have a lot of clicking in other parts of my body, so I'm not worried about a little more noise in my hip.

"As a world-class athlete, there is nothing I value more than my health. To have that taken away from me for more than a year and to not even know what was wrong was a challenging time in my life. I thank Terie and Dr. Philippon for giving me the most important thing in my life, which is my health, and the ability to enjoy my life at the highest level."

Reggie is now married and relatively settled in his Sun Valley, Idaho, home. He and his wife Laura, an elementary school teacher, have a new baby girl, Jayden. A typical day for him — but remember, this guy is not typical — is to be Mr. Mom when Laura leaves for work, then head to the slopes by mid-morning.

ALWAYS A SKIER

"Right now my hands are full with my family and working with my sponsors, Columbia Sportswear and K2 Sports." He provides feedback regarding outdoor clothing for Columbia and helps design ski equipment for K2 Sports. "My job is to be involved in the sport of skiing. I am a skier, always have been, always will be."

Asked what he wants to be doing 5-10 years from now, Reggie says, "I hope to be skiing with my daughter." For an athlete who has reinvented himself at least three times and succeeded at the very highest levels of competition, skiing with Jayden may become the most satisfying experience of his life.

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Florian Elser, M.D., the European Visiting Scholar (left), in surgery with Dr. Millett.

photo: Joe Kania

Foundation Welcomes Florian Elser, M.D., the European Visiting Scholar, sponsored by Arthrex, Inc.

Dr. Florian Elser is the 2008-2009 European Visiting Scholar. He received his medical degree from the University of Munich (Ludwigs Maximilians Universität), Germany, in 1999. During his medical studies, he attended the University of Utah for six months. Dr. Elser began his residency in general surgery but changed focus in 2002 to orthopaedics and traumatology at the University Hospital Rechts der Isar in Munich.

This university hospital is part of the Munich Technical University, which is the highest-ranked university in Germany. In January 2007, Dr. Elser became certified by the German Board of Orthopaedic and Trauma Surgeons and worked as an attending physician at the Orthopaedic Trauma Service of the University Hospital Rechts der Isar, where he performed approximately 600 surgeries per year. He specializes in traumatology of the extremities and is a member of the German Traumatologic Society (DGU) and the AGA (German-speaking Arthroscopic Society). Dr. Elser has been a frequent presenter to medical students and residents and is author or co-author of seven national and international papers and two book chapters.

The focus of this fellowship is 60 percent research and 40 percent clinical education, under the direction of Dr. Peter Millett. Dr. Elser is working in the Biomechanics Research Laboratory with director Dr. Mike Torry and senior staff scientist Dr. Erik Giphart. His studies involve the function of the long head of the biceps tendon. Through the Visiting Scholars Program, he looks forward to advancing his scientific knowledge and career, and to improving his clinical skills in orthopaedic sports medicine.

The Visiting Scholars programs are sponsored by corporate and individual donors. Arthrex, Inc., an orthopaedic medical device company, is sponsoring the European Visiting Scholars program and Jorge Paulo Lemann is supporting our Brazilian Visiting Scholar. These scholars learn new surgical techniques and conduct research, which is submitted for publication in leading orthopaedic journals. In 2009, the Foundation will be offering a unique, first of its kind, Sports Medicine Imaging Research Fellowship, sponsored by Siemens.

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SPORTS AND WELLNESS

Sunshine Needed

By Melanie Hendershott, R.D., C.S.O.

Editor's note: Melanie is the outpatient dietitian for the Shaw Regional Cancer Center in Edwards, Colorado.

Sunshine is a very important part of your health. It is fundamental in regulating sleep patterns and also helps improve your mood and avoid depression. But one of the most important parts of getting enough sunshine is obtaining enough vitamin D.

Sunshine is one of the best sources of Vitamin D. It is manufactured when sun-rays hit your skin with UVB light. UVB light is only available when the sun is the highest in the sky so an early afternoon walk or sitting outside is best for making vitamin D. You need approximately 10-15 minutes of sunshine three times per week to maintain adequate levels in your bloodstream of vitamin D. Older people are at higher risk of being vitamin D-deficient since they lose some of the ability to convert the sunrays into vitamin D. Those over the age of 50 may need to consider supplements of vitamin D.

(continued on page 16)

photo: John Kelly

(**Steadman-Hawkins Update**, continued from page 3)

Dr. Steadman Patients Bruce Smith and Rod Woodson Elected into the Pro Football Hall of Fame

Bruce Smith and Rod Woodson have a lot in common. They both were elected into the NFL Pro Football Hall of Fame, Saturday, January 31, and their careers were saved by Dr. Richard Steadman. Other Hall of Fame patients of Dr. Steadman include John Elway, Jim Kelly, Ronnie Lott, Dan Marino, and Joe Montana.

A defensive end, Smith retired five years ago with an NFL career record 200 sacks and two all-decade teams. Drafted No. 1 overall in 1985, Smith had the most seasons with double-digit sacks (13) and the most postseason sacks. He earned defensive player of the year honors in 1990 and 1996 with Buffalo and concluded his 19-season career with four seasons as a Washington Redskin.

Woodson, the 1993 defensive player of the year, also made the 1990s all-decade team. He led the NFL in interceptions in 1999 with Baltimore and 2002 with Oakland, and in kickoff returns (27.3-yard average) in 1989 with Pittsburgh. He played cornerback and safety for the Steelers, 49ers, Ravens, and Raiders in a 17-season career, winning the NFL championship with Baltimore in the 2001 game and making Super Bowls with Pittsburgh and Oakland. He made four visits to Dr. Steadman's office between 1991 and 1997. In 1995, Dr. Steadman reconstructed his ACL and performed microfracture.

After he set the all-time career sack record five years ago, Bruce Smith had this to say, "I have been playing this game a long time. I've had a lot of surgeries. A lot of very important people were instrumental in prolonging my career." Immediately following the game against the New York Giants and from the locker room, Smith called Dr. Steadman at home to express his appreciation. Smith also called Dr. Steadman this past December to tell him he had been nominated for the Hall of Fame and that if he was elected, he would invite

him and Mrs. Steadman to Canton, Ohio, for his induction ceremony next August.

Smith knew back in 1992 that his 29-year-old knees were quickly deteriorating from his years on the college and pro gridiron. He had one surgery on his left knee earlier, but he tried to come back too early and his knee started giving way again, this time with major fragments breaking away. "Then," says Smith, "I decided to pay Dr. Steadman a visit."

Smith had heard from his agent and from the Bills' staff about Dr. Steadman's work. "I decided to go to Dr. Steadman because he was operating on people—skiers mostly—with knees far worse than mine. The first time I met him, and saw the way he was built—like me, he's a little knock-kneed and, from the waist down, we're pretty much similar—I knew he was my man."

After that day in March 1992 and his microfracture surgery that same month, Smith was back at his peak. Said former Buffalo Bills quarterback and Foundation board member Jack Kemp, "That surgery added at least five years to Bruce's career."

Smith has undergone two microfractures. The first, in March 1992, was followed by another, on his right knee, in February of 1996. He most assuredly agrees with Jack Kemp. "If I hadn't met Dr. Steadman, there's a good chance my career would have come to an end."

Editor's note: Fifteen years ago, less than 1 percent of the world's orthopaedic surgeons performed microfracture, a procedure that encourages cartilage regeneration in the knee joint. Today, this technique is the one accepted by surgeons as the first treatment for articular cartilage defects. Microfracture, an arthroscopic technique used to repair cartilage tissue, was pioneered by Dr. Steadman and validated by the Steadman◆Hawkins Research Foundation's Basic Science and Clinical Research departments. These and other procedures developed and validated by the Foundation can postpone the need for joint replacement surgery.

Board Members in the News

In its May 2008 edition, the international magazine *World Soccer* published a list of the 100 most powerful and influential personalities in the game. And **Dr. Richard Steadman**, "the famous American knee surgeon who has saved the careers of many a player," was ranked 82nd. In its introduction to this unique ranking, *World Soccer* set out the following criteria used in its selection-making process: "Our aim is to identify the most influential figures in the world of football, the decision makers, the kingmakers, and the icons who have changed the way we look at the game."

Earl G. Graves, Sr.

On March 25th, the United Negro College Fund (UNCF) will present its highest honor, the Frederick Douglass Patterson Award, to Steadman◆Hawkins Research Foundation board member **Earl G. Graves, Sr.**, publisher and founder of *Black Enterprise* magazine. The presentation will be made at the UNCF's 65th anniversary dinner in New York City. Entrepreneur and champion of education, Mr. Graves "has set an example of success and service that inspires us all," said Dr. Michael L. Lomax, president and CEO. Philanthropist, inventor, and author, he has been named by *Fortune* magazine as one of the 50 most powerful and influential African Americans in corporate America.

This annual celebration brings together more than 1,400 friends and supporters of UNCF, including board members, college presidents, corporate partners, students and alumni.

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Photo: AP/Wide World Photos

Bruce Smith (right) of the Washington Redskins, enjoys a tribute to his career sack record (200) with Foundation Board Member Jack Kemp (left) during half-time of the NFL match Philadelphia Eagles vs. Washington Redskins in Landover, Md., Saturday, Dec. 27, 2003. The Eagles won 31-7.

(continued from page14)

Vitamin D is very important in absorption of calcium and building and maintaining strong, healthy bones. It helps prevent osteoporosis, osteoarthritis, and osteomalacia, which is a softening of the bones. Vitamin D also prevents other diseases, such as heart disease, hypertension, chronic pain, weakness, chronic fatigue, mental illness and rheumatoid arthritis. Recent research has shown vitamin D deficiency linked to increased risk of many cancers, including breast cancer, prostate cancer, lung cancer, and yes, believe it or not, skin cancer. It may be the lack of sunshine causing the skin cancer rather than the overexposure. It is still important to avoid sunburn when outside, but 10-15 minutes a few times per week without protection is vital for your vitamin D levels.

If you are unable to get out in the sunshine for the adequate time, try taking 2,000 IU of vitamin D daily, especially in winter, or you can try some high-quality cod liver oil, which is also high in vitamin D and a good source of omega-3 fatty acids. Good food sources of vitamin D are fatty fish such as salmon, mackerel, and sardines; eggs; and fortified milk.

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Keeping Your Edge

By Victoria Bartel, P.T., S.C.S.

Editor's note: Victoria Bartel is an outpatient orthopaedic and sports physical therapist at Howard Head Sports Medicine Center in Vail, Colorado.

March is here. Better, deeper snow and spring conditions are on the way. Are you ready to take it on? With a sharper, stronger form, you could take your skills to that next level. Maybe you are looking to work on your endurance so that your last run of the day is just as solid as your first run. It is important throughout the season to maintain your fitness level just as you would maintain the quality of your skis or snowboards. A comprehensive ski/snowboard program should focus on core and leg strengthening, plyometrics, flexibility, and an aerobic component.

Better flexibility is the first defense against injury and will give you the advantage when attempting to improve your form on the slopes. A stretching program is simple and quick, and it should be performed on a daily basis. Your routine needs to include a warm-up. An example could be a brisk early morning walk or jog. Some of you may prefer something more intense,

photo: John Kelly

such as a 30-minute workout at home, in the gym, or outside. Stretches should include quadriceps, hamstrings, piriformis muscles, and calves.

The bulk of your program should focus on core and leg strengthening. Strength in your core muscles will help prevent back pain and give you better balance and control on your skis/snowboard. The key to a solid core program is a muscle known as your transversus abdominus (TA). To achieve proper muscle recruitment, refer to the pictures at the side of this article. Once you have mastered this exercise, you should incorporate this into everyday activities.

To achieve maximal performance, a leg-strengthening program should focus on exercises that target quadriceps, hamstring, and hip musculature. Each exercise needs to simulate a ski/snowboard activity. This includes longer duration holds to work on the endurance of the muscle, which is necessary for sustained snowboard postures and long ski runs. Ski tuck squats will help to isolate the quadriceps muscle. Forward lunges with trunk rotations pull in the entire lower extremity, as well as incorporating your core into the exercise. This last exercise is extremely beneficial for those of you who telemark ski. Another great element to add to your routine is a structured Pilates or yoga class to bring together strength and flexibility.

A sometimes overlooked component to a conditioning program, agility exercises work to enhance balance, form, and endurance. Agility exercises can include lateral side jumps, resisted forward and backward running, and W-cuts. These exercises should first be performed with a physical therapist or trainer to avoid any potential injury due to improper technique. These drills will facilitate the body's ability to react quickly and efficiently on the mountain.

Remember that as you progress your training program, it is important to perform these exercises safely and with correct form. If further direction is needed, consult a physical therapist or personal trainer to help modify a program to meet your body's specific needs. Enjoy a great rest of the season. For additional information, please contact Victoria Bartel, P.T., S.C.S., at 970-476-1225.

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Transversus Abdominus:
Place your first two fingers just inside your hip bone.Take a breath in and out, relaxing all of your abdominal muscles. At the end of your exhale, draw in your low belly. You should feel tension under your fingers without bulging. Release the contraction.To progress, try to hold the contraction while breathing normally.

Heelslides:
Contract your TA. Inhale while lifting one leg. As you Exhale, extend the hip and knee. Inhale while returning the leg to the march position; exhale while lowering to start position. Keep your TA engaged and your pelvis stable. Alternate sides each time.

Ski-Tuck Squat
Position into a ski-tuck squat on an unstable surface, such as BOSU. Hold this position for an advanced amount of time.1-2 minute holds. Repeat 3 times.

Forward Lunge with Alternating Trunk Rotation
Perform a forward lunge while rotating to the alternate side with each new step. It is important to keep all of your weight on your front heel and not allow the knee to pass farther forward than your toes. Use a weighted ball.

FREQUENTLY ASKED QUESTIONS

WHAT ARE THE MOST SIGNIFICANT ACCOMPLISHMENTS OF THE FOUNDATION IN 2008?

Dr. Marc Philippon published a landmark study on two-year hip arthroscopy outcomes in the prestigious *Journal of Bone and Joint Surgery*. Dr. Philippon and our Clinical Research group are literally teaching the world about advancements in hip arthroscopy.

The Foundation has also initiated an important study in Basic Science to determine whether adding an adult's own bone marrow stem cells can improve cartilage regeneration.

Dr. William Rodkey, Dr. Richard Steadman, and Karen Briggs were among the authors of the lead article in the July 2008 issue of *Journal of Bone and Joint Surgery.* Based on research conducted both at Steadman-Hawkins and at other sites around the country, the article describes long-term results on a collagen implant for meniscus regeneration.

In the Biomechanics Laboratory, our dual-plane fluoroscopy research received the second-highest award from the American Orthopaedic Society for Sports Medicine for groundbreaking work in further understanding the bones in the shoulder, their movement, and their relationship to each other.

The Foundation's Imaging Research department, which began in late 2008, will be first in the world solely dedicated to improving imaging diagnosis in sports medicine.

In education, we added Visiting Scholars from Europe and Brazil to our Fellowship Program. We also laid the groundwork for the first Radiology Fellowship in Imaging Research, and Dr. Richard Steadman and Dr. John Feagin published a book titled *The Crucial Principles in Care of the Knee.*

photo: John Kelly

HOW IS THE 3-T MRI USED TO DIAGNOSE INJURIES?

There are three crucial steps:

The first is an excellent physical examination by an orthopaedic surgeon.

The second is the image created by the technology being used. There is a vast difference in available technology used to diagnose injuries across the country. Steadman-Hawkins has the latest technology for imaging.

Third is proper diagnosis or interpretation of the image. Medicine is becoming so specialized and developing so rapidly that it is difficult for any single doctor to be familiar with each condition. Even with orthopaedics, it is best to have someone familiar with sports medicine to get the most out of an exam.

HOW WILL THE FOUNDATION'S IMAGING RESEARCH MAKE A DIFFERENCE?

We hope we can contribute to understanding, developing, and validating the type of diagnosis and treatment that no one has been able to do previously.

WHAT IS THE FIRST STEP I SHOULD TAKE IF I WANT TO MAKE A GIFT TO THE FOUNDATION?

Please contact John McMurtry, 970-479-5781, or e-mail — john.mcmurtry@shsmf.org, for information on our various research projects and programs. We have an extensive menu of giving options and areas of need.

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photo: John Kelly

SAVE THE DATES

Steadman-Hawkins On the Links

THE STEADMAN-HAWKINS SANCTUARY GOLF TOURNAMENT, PRESENTED BY RE/MAX INTERNATIONAL, SET FOR AUGUST 20, 2009

Proceeds from the sixth annual tournament will support the development of new procedures and methodology to battle degenerative arthritis. The team event 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.

Through 2008, more than 235 charities have raised more than $43,000,000 to benefit the constituents they serve. Renowned course architect Jim Engh, *Golf Digest's* first-ever "Architect of the Year" in 2003, designed the course that protects a private oasis of 220 acres, effectively complementing the 40,000 surrounding acres of dedicated open space.

Golf Digest listed Sanctuary as the best new private course in 1997. Gary McCord, CBS golf analyst and senior PGA tour professional, has said, "Sanctuary is simply the most spectacular golf course I have ever seen."

The Steadman◆Hawkins Research Foundation is grateful to Dave and Gail Liniger, owners and co-founders of RE/MAX International, who created this unique opportunity for the Foundation 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 (shsmf.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 Foundation events, please contact John McMurtry at the Steadman◆Hawkins Research Foundation (970) 479-5781.

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Habervision Is Here!

The Steadman◆Hawkins Research Foundation would like to offer all our supporters and their families and friends the opportunity to purchase the new and exciting line of Habervision Polarized Eyewear products and accessories at a 50 percent savings! A portion of the proceeds from each sale goes to the Foundation.

The sunglasses and ski goggles incorporate the very best polarized technology available. There is something for everyone. Go to www.habervision.com and enter Affinity Member Code: FOUNDATION, or click on the link below. There is no expiration date. Share the code! Shop and enjoy.

The Steadman◆Hawkins Research Foundation 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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Your Legacy, Our Future. Please remember Steadman◆Hawkins Research Foundation in your will, trust, or other estate plan.

Mark Your Calendar:

AUGUST 20, 2009
2009 Steadman-Hawkins Golf Classic, presented by RE/MAX International at Sanctuary in Sedalia, Colo. For more information, contact John McMurtry at (970) 479-5781.

photo: John Kelly

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