

Winter 2012

# SPORTS TALK

Journal of the ACA Sport Council



2011 ACASC Board Members

## PUERTO RICO HOSTS 2011 ACASC ANNUAL SYMPOSIUM

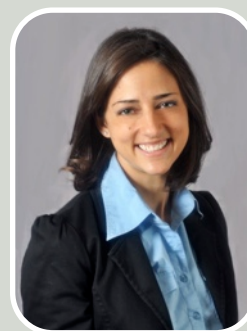
The American Chiropractic Association Sports Council hosted its 2011 Symposium and General Membership Meeting in San Juan, Puerto Rico at the scenic Caribe Hilton Hotel the weekend of July 29th-31st.

San Juan provided an unforgettable backdrop for the 2011 event, offering those present an opportunity to “Discover Clinical Pearls,” while at the same time unite and reunite with colleagues, and enjoy the beautiful Caribbean.

In addition to a wonderful educational program, the site of the symposium served as a venue to hold the Board of Director’s, General Membership, Faculty Advisor and Gavel Club Meetings. According to Dr. Guillermo Bermudez, ACASC

President, “Puerto Rico was unique in that we had dignitaries from Mexico, Canada, Puerto Rico, Costa Rico and FICS in attendance with a goal of fostering worldwide cooperation to address challenges to our profession united.”

The ACASC experienced phenomenal growth this year in membership and the number that made the trip to Puerto Rico for the symposium significantly exceeded expectations.



By: Dr. Julie Scarano

Over the course of the weekend, attendees were given the possibility to earn up to 16 CEUs with current topics from expert speakers including: Dr. Jeff Spencer on *The Anatomy of Peak Performance and Structural Interference and Sports Performance*, Dr. Jennifer Illes on *Shoulder Evaluation, Management and Rehabilitation*, Dr. George Petruska on *Functional Movement Screens*, Brian Bettendorf on *Suspension Training for Shoulder Rehabilitation*, Dr. Robert Silverman on *Sports Nutrition for Injury Repair*, and Dr. Russ Ebbets on *Movement at the Speed of Sport*.



*Panel of sports chiropractic veterans offering their expertise to others.*

As an added bonus, Dr. John Danchik and Dr. Thomas Hyde hosted an interactive forum in which numerous veterans in the sports chiropractic arena joined in a panel discussion to answer questions and share their clinical and personal experiences throughout the metamorphosis of sports chiropractic over the last three decades.

Doctors and students in attendance were invited to visit multiple vendors that made the journey to San Juan to be present at the exposition. The ACASC would like to extend a special thank you to this year's vendors including OptoGait/OptoJump, Metagenics, HRV Pro, Erchonia, TRX, Fat-Tool, The Growth Institute,

Narson, Lumos, Inc. (KT Tape), and the ACA Rehab Council. Support from vendors is instrumental to the growth of the organization and crucial in pulling together events such as the annual symposium. Additional thanks are offered to the University of Western States for providing CEUs for this year's event and to New York Chiropractic College for sponsoring a reunion villa overlooking the beautiful Condado Lagoon, which provided a space for event attendees to meet and mingle throughout the weekend.

Many took advantage of the location and extended their trip to experience zip-lining adventures, the Caves of Camuy, Flamenco Beach, the Bacardi Distillery, Bioluminescent Bay, the San Cristobal/San Felipe Del Morro Castle, El Yunque's Tropical Rain Forest, the Plaza de las Americas, and, of course, renowned Old San Juan.



*International Sports Chiropractic Dignitaries representing Costa Rica, Canada, Mexico, United States & Puerto Rico.*

Students from many schools around the nation attended this year's symposium, several of which participated in the 2<sup>nd</sup> Annual Research Symposium dedicated to Dr. Thomas Hyde. This year's winners included: Mike Smith, Palmer West – "Concussions" (Honorable Mention), Anthony Harris, Palmer Florida – "Concussions" (Honorable Mention), **continued on next page...**





Attendees enjoying social time in the NYCC-sponsored reunion villa



Dr. Carlo Guadagno, ACASC Treasurer, and Palmer West Student/Australian 2010 Olympic Skeleton Racer, Melissa Hoar, enjoying time at the Presidential Suite Reception

Mia Ortega, Bridgeport – “Psychology of an Injured Athlete” (3<sup>rd</sup> place), and Jake Altman, NYCC – “Concussions” (2<sup>nd</sup> place). Justin Rabinowitz, NYCC, took first place for his presentation on “Throwing Injuries.”

One of the goals of the ACASC is to help build bonds between its members so that each doctor, along with their expertise, is only a phone call away. In this light, Friday evening, the Council held a Presidential Suite Reception in which board members, athletes, students, doctors and friends were given the opportunity to share hors d’oeuvres and mojitos before heading out to explore the San Juan nightlife.

At Saturday’s General Membership Meeting and Luncheon sponsored by OptoGait/OptoJump, several news items were announced by the ACASC Board to the group:

- Moving forward, *Sports Talk* will be transitioning to digital format to be sent out each quarter. Members were encouraged to submit articles.
- Over 1,200 old ACASC photos were located and scanned this year to help preserve the history of the organization.
- Currently in the works includes an additional project to re-vamp a field manual for members which will soon be posted online.
- Past President, Dr. Jan Corwin, unable to attend the event, sent good wishes and reminded members to lead by example and give back to the ACASC.

- Student Liaison President, Shah Soleimani, spoke on mentorship and preceptorship projects, encouraging both doctors and students to participate in these programs.

- ACA Liaison, Mike Simone, discussed this year’s efforts to make sure chiropractic is not discriminated in the legislature, getting Medicare full-scope coverage, and tactics for getting chiropractors into all VA hospitals.



Winners of the 2<sup>nd</sup> Annual Dr. Thomas Hyde Research Symposium along with Research Symposium Coordinator, Dr. Russ Ebbets (left), Dr. Thomas Hyde and Scholarship Donor, Dr. Peter Gorman (right).

Appreciation awards were presented to Dr. Julie Scarano for her assistance to the board throughout the year with public relations, Dr. Jay Greenstein for representing the ACA at the NATO Youth Sports Safety Summit in Washington D.C. and to Dr. Peter Gorman for his efforts in elevating the status of ACASC doctors and his ongoing commitment to challenging chiropractors to raise the bar for the profession, giving us the cultural authority we deserve.

Dr. Ed Feinberg, was bestowed with the ACASC's highest honor, 2011 Sports Chiropractor of the Year, by Dr. Rich Robinson. With a dream and the help of his students in the mid 90's, Dr. Feinberg created a Student Sports Council at Palmer West. His idea has since spawned many other schools to have formed their own ACA Student Sports Councils, and his work has inspired graduates who have gone on to distinction around the globe.

"Dr. Feinberg's leadership is palpable in the quality of his students, the sharing of his skills, knowledge and ideas to benefit the chiropractic profession without

recompense," says Dr. Guillermo Bermudez, ACASC President. "He has taught students to not settle in a plateau, but to climb the mountain of personal potential."

Dr. Feinberg's leadership has propelled the chiropractic profession ahead by light years and his work has and will continue to leave a legacy unparalleled. Congratulations to Dr. Ed Feinberg!

The luncheon concluded with the announcement of the location of the 2012 Symposium and General Membership Meeting at the luxurious Westin Kierland Resort and Spa in Scottsdale, Arizona. The current ACASC Board is challenging all members to recruit one new member in reaching the goal of 500 members and 300 attendees at next year's fantastic site. The symposium will take place a week earlier than usual, July 20-22<sup>nd</sup>, so mark your calendars, get your golf clubs ready, and check out our website at [www.acasc.org](http://www.acasc.org) for more information coming soon regarding this event!



*Dr. Julie Scarano accepting her Appreciation Award from ACASC President, Dr. Guillermo Bermudez*



*Dr. Thomas Hyde, Dr. Jay Greenstein, Appreciation Award Recipient, and Dr. Bermudez*



*Dr. Peter Gorman posing with Dr. Bermudez after receiving accolades for his dedication to the advancement of the Chiropractic profession.*



*Dr. Ed Feinberg receiving the ACASC's 2011 Sports Chiropractor of the Year Award.*

## Presidents Message

Guillermo Bermudez, DC, CCSP

Hello members,

Please join me in welcoming and congratulating your newly elected board members which consists of two new board members. Michael Lord, DC, is your new secretary and Len Ershow, DC, CCSP, is your new treasurer. In 2009, Michael Lord was ACASC student liaison president and was mentored by Drs. Ed Feinberg and Ted Forcum. Dr. Ershow has a long history of service to our profession working on many different boards and working with athletes both nationally and internationally. Drs. Kelly Lange, Ted Forcum, and Sherri Lashomb continue their service to you, our members. I believe this board has a winning combination of skills, experiences, and traits that will lead our organization to new heights.



Last year I shared with you our goals, beliefs, and efforts in representing sports chiropractors. We believe that our greatest asset is our members. Each of us working cooperatively, joining in one voice together, will strengthen our organization and sports chiropractic. One voice made up of not a few, but of many can be heard strong, and far. Thus, we will continue our strategic positioning to recruit doctors to this great organization. We had significant growth in our membership last year, and our current goal is to grow this organization to 500 members within three years. The more members, the stronger the influence we heed, and therefore the greater cultural authority.

Over the years, our board has recognized that we needed to lay a solid foundation for the future of the ACASC. This fall, we formed a committee to renovate our bylaws. The committee was chaired by Dr. Mike Simone, our ACA Liaison, and consisted of Drs. Ed Feinberg, Tom Hyde, Bill Bonsall, and Ira Shapiro. They had the tedious challenge to peruse our bylaws line by line and make recommendations that were ratified by your board. Dr. Simone has submitted these changes to the ACA and were approved during the House of Delegates meeting in Washington D.C. I truly thank you all for your continued efforts and dedication to this great organization. Your work has become the model for other ACA councils as they revamp, or create their own bylaws.

We will continue our effort to grow our ACASC Student Sports Councils. Our goal is to have a council in every chiropractic school in the nation by 2015. This past year we had a student liaison president and vice president, as well as secretary to help with this endeavor. Mia Ortega—your current student ACASC secretary—succeeded in starting an ACASC Student Sports Council at the University of Bridgeport. She also was instrumental in helping other colleges with their efforts at starting their own Student Sports Councils. For your hard work, Mia, we thank you.

Our Faculty Advisors are instrumental for this growth in student programs and in helping the ACASC in gaining cultural authority. Dr. Ed Feinberg led the initiative for the ACASC educational position statement. On behalf of the ACASC, we mailed a letter (please see letter in Sports Talk) to all the chiropractic colleges in our nation on the need to continually update their programs to reflect the most current, best evidence regarding the recognition and management of concussion. This letter was well received; in fact, the University of Bridgeport has already responded positively on the steps they are taking to lead our profession and join us on this endeavor.

We will continue to cherish and foster those relationships with our business partners that support our organization and our profession. Optogait has been our sponsor for our Annual Membership Meeting at our Symposium for the past two years. They also have sponsored \$3,000.00 and \$5,000.00 scholarships in 2010 and 2011 respectively. Performance Health has sponsored our Presidential Suite for the last three years and they continue to be strong supporters of our organization. Erchonia, TRX, Vitality Depot, and Metagenics have sponsored speakers, and attended our symposium for years; please consider these companies in your future purchases. We will continue to build long-term reciprocal relationships and provide value to those who invest in our organization and our members.

We have made great strides in working reciprocal relationships with other organizations. Our goal is to continue tearing down barriers, building up bridges, and shedding light on common ground with other specialties, medical doctors, athletic trainers, PT's, and other health care providers. On February 2<sup>nd</sup>-4<sup>th</sup>, Drs. Ted Forcum, Tom Hyde, Kelly Lange and I attended the Joint Commission on Sports Medicine meeting. Dr. Hyde lectured at this meeting on FAKTR-PM, Dr. Forcum presented instrument assisted soft tissue techniques for Achilles tendinopathies, and I gave an organizational update. Our presentations were well received and shone light on the expertise of our profession to health care providers.



whom may not have exposure or understanding of our profession. The purpose of the Joint Commission is to serve as a convener and as a catalyst for cooperative ventures. The Joint Commission accomplishes its purpose, in part, by convening an annual forum, where representatives from the societies come together to share what they are doing, learn what others are doing, and debate those issues that will affect the future of the sports medicine. I represented the sports council at NCLC in Washington D.C February 14<sup>th</sup>-19<sup>th</sup> and lectured at the ACA Specialty Council Seminar focusing on neck and shoulder injuries. I will also be manning a booth at the Council of Chiropractic Physiological Therapeutics and Rehabilitation Symposium to be held in Las Vegas on March 30<sup>th</sup>-April 1<sup>st</sup>. Additionally, I have been invited to represent American Sports Chiropractic at the 9<sup>th</sup> Annual Sports Conference of the Royal College of Chiropractic Sports Sciences in Canada. Our goal is to continue to expand the reach of the ACASC and foster trust, support, and confidence in our successful efforts on behalf of the chiropractic sports community with other like minded organizations. Together, we can achieve more.

In closing, I would like to personally invite our members, students, faculty, and families to our Annual Symposium and General Membership Meeting to be held July 20<sup>th</sup>-22<sup>nd</sup> in Scottsdale, Arizona. The resort boast beautiful pools, a challenging golf course with air-conditioned carts, and many other outdoor activities. Look for the upcoming E-blast for more information regarding the symposium. Plan on attending for we will continue to arrange opportunities so that our members are on a first name basis, and a simple call away.

**D.C. Registration is \$180 until April 20.**

### KEYNOTE SPEAKERS



Chancellor Dennis  
Marchiori, D.C., Ph.D.



James Chestnut,  
D.C.

### ALONG WITH THIS AMAZING LINE-UP OF SPORTS CHIROPRACTIC PROFESSIONALS...



Steve  
Capobianco, D.C.



Tom  
Hyde, D.C.



Bill  
Moreau, D.C.



Greg  
Doerr, D.C.



Craig  
Liebenson, D.C.



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Schneider, D.C.

## VISION 2020

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# Pediatric Overuse Injury NATA Statement

## National Athletic Trainers' Association Position Statement: Prevention of Pediatric Overuse Injuries

*Journal of Athletic Training*

2011;46(2):206-220

Tamara C. Valovich McLeod, PhD, ATC; Laura C. Decoster, ATC; Keith J. Loud, MDCM, MSc; Lyle J. Micheli, MD; J. Terry Parker, PhD, ATC; Michelle A. Sandrey, PhD, ATC; Christopher White, MS, ATC

**Objective:** To provide certified athletic trainers, physicians, and other health care professionals with best practice recommendations for the prevention of overuse sports injuries in pediatric athletes (aged 6–18 years).

**Background:** Participation in sports by the pediatric population has grown tremendously over the years. Although the health benefits of participation in competitive and recreational athletic events are numerous, one adverse consequence is sport-related injury. Overuse or repetitive trauma injuries represent approximately 50% of all pediatric sport-related injuries. It is speculated that more than half of these injuries may be preventable with simple approaches.

**Recommendations:** Recommendations are provided based on current evidence regarding pediatric injury surveillance, identification of risk factors for injury, pre-participation physical examinations, proper supervision and education (coaching and medical), sport alterations, training and conditioning programs, and delayed specialization.

**Key Words:** Adolescents; Children; Chronic Injuries; Micro-Trauma; Growth; Development

This current position statement by the NATA is designed to provide healthcare professionals “with current best practice recommendations regarding the prevention of overuse injuries in pediatric athletes, including children (aged 6-12 years) and adolescents (aged 13-18 years).” Estimates suggest that 50% of overuse injuries in the pediatric population may be preventable. The authors recommend that prevention of these injuries requires a comprehensive multidimensional approach including improved injury surveillance, identification of risk factors for injury, thorough pre-participation physical exams, proper supervision and education both by coaches and sports medicine team, sport alterations, improved training and conditioning programs, and delayed specialization.

This article examines each of these approaches and highlights the evidence supporting recommended best practices. These recommendations involve everything from potential risk factors, male/female differences/predispositions to injury, joint mobility indexes, coaching education programs and developmental progressions for athletes. This article can facilitate a dialogue between you, coaches, players and parents in the best practices to prevent overuse injuries. A link is provided to the article.

<http://www.nata.org/sites/default/files/Pediatric-Overuse-Injuries.pdf>

### Michael Tunning D.C., ATC

Dr. Tunning is a faculty member at Palmer College of Chiropractic in the Diagnosis and Radiology Department. He also is an Associate at Chiropractic Healthcare Associates in Cedar Rapids, IA focusing in musculoskeletal injuries as well as athletic injuries. Dr. Tunning serves as the ACA Sports Council Liaison to the National Athletic Trainers' Association.

# And Miles to go before they sleep...

By: Kelly Lange, DC, CCSP®



Another September has passed which means another Pine to Palm 100 mile endurance race is on the books. This was the second running of the beautiful and hilly Southern Oregon course, and my second year as Medical Director for the event. After last year, I could hear the questioning in people's voices as they asked, "So, are you going to do this again next year?" Being a girl who loves a challenge, I said "Of course" knowing there were things I could do to make it better. So what did I learn that made the second year easier? I will share some of those things with you to help you should you take on the role of medical director for an event, or if you are working any athletic event as a medical volunteer.

For those of you not familiar with the world of ultrarunning, yes, they actually do run the 100 miles. No, it's not a relay and there are 1000s of people 'crazy' enough to do this every year at many events all over the world. The most famous 100 mile race is the Western States 100 which runs from Squaw Valley to Auburn, California each June. So many people want to do this race each year that you have to get in by qualification or lottery. Western States 100 has a rich history

including the fact that it was first conceived and run by a California Chiropractor, Gordy Ainsleigh. I actually saw him adjusting at the pre-race meeting in Squaw last summer, then the next day he went on to attempt his 23rd running of the course. I can't say I'll be attempting this distance any time soon (most likely never, if my husband has anything to say about it) but it is inspirational to see the people from all walks of life who check this off their bucket list.

The first important change I made for this year was to create a schedule for myself. This was somewhat of a necessity since I happened to be 14 weeks pregnant at the time of the event, but I also knew I couldn't do what I did last year -not sleeping for 27 straight hours. The event started at 5 am on a Saturday and by 7 am the next morning, I had not the cognitive skills necessary to perform the medical duties that I may have been called upon to do. This means finding good staff. It's not easy to find someone to cover the midnight to 6 am shift, but a little begging and pulling from a pool of people with ultrarunning experience got me the right help. This also required delegating. I turned over one of the med stations to a RN who volunteered for me last year. By assigning med station captains, I could shake off a little responsibility, and it set up someone in the chain of communication in the event of an emergency. Next year, I will likely take this one step farther and give the med station captains a budget and have them get their own supplies and staff

to further take some weight off of my shoulders.

On the note of staffing, you have to choose people that have experience in the field you're asking them to work in. Granted, experience will come for those eager beavers who want to get their feet wet, but for me, having people who understand what an endurance event of this nature looks like is a huge advantage. For example, the staff I had at the finish line Sunday morning consisted of a medical doctor who stood outside until I approached her with a situation a runner was experiencing inside. As I went through the details she said, "If he's so bad why don't you send him to the hospital". I bit my tongue and didn't say what I wanted to say: "that's why you're here". She stepped up and ended up agreeing with my assessment, but it was a lesson on not putting someone in charge who doesn't understand the nature of the sport. As we tell anyone wanting to get into sports chiropractic – you have to know your sport!!

This year I also learned that being over prepared is a good thing. I put many hours in prior to the event working on the medical plan, creating an emergency evacuation route and getting all the necessary paperwork in place. I contacted all of the local emergency departments to inform them of the event and provided information on hyponatremia (a somewhat rare but serious medical condition that is seen in endurance events, including marathons and long-course triathlons). By doing this, I found out that local EMS does not do



# SAVE THE DATE!!!!

## 2012 ACA Sports Council Symposium

### *"Making Plays to Achieve Clinical Excellence"*

Scottsdale, Arizona  
| Westin Kierland Hotel |  
| July 20th-22nd, 2012 |



This year's symposium will have an emphasis on the evaluation and management of the lower extremity. Please visit our website for more information on registering for this event!

[www.ACASC.org](http://www.ACASC.org)

blood analysis in transit, so I was able to provide a protocol to med staff to inform EMS about IV administration for suspected cases of exercise-associated hyponatremia in order to avoid the wrong type of IV fluids that could worsen the athletes' condition. This proves the point that you need to know the types of conditions that could present during the event that you are working. You likely won't have someone going into seizures from exercise associated hyponatremia encephalopathy during a 5K event, but you could have a cardiac event. Be prepared for any possible scenario that could come up.

Along the lines of being prepared, I made sure I had contact info for every runner so I had someone to call should something go wrong. A lot can happen over the course of 100 miles, and I'm sure it's no surprise that not all brave souls that toe the line make it to the finish. But our first year showed us that if they decide to pack it in at mile 31 without telling us, we end up on a hunt for a

runner who has simply gone home for a shower and a burger. Implementing a better system of tracking runners and emphasizing the importance of this issue to the runners in a pre-race meeting made for a smooth year of every runner accounted for at every check-in point we had. Again, this emphasized the need for preparedness. The first year you work an event, you may not know to expect certain issues and scenarios, but with some tweaking, the system can be made safer and more efficient for future years. It also shows how effective it is to educate the competitors prior to the event. This goes beyond informing them there are risks involved with any athletic event; if they are asthmatic, they should have their inhaler, if they are allergic to bees they should carry an epipen, etc. I overheard the medical director for a running event I worked last fall explaining to someone how giving info to the competitors of possible medical conditions they could encounter, as well as providing good info to the medical volunteer staff has contributed to the number of people in

the medical tent decreasing over the years. Again, you can't be too prepared.

What have I learned that I will work on for year 3 (yes, to you doubters, I will be back for the 3<sup>rd</sup> annual P2P100, with a 6 month old in tow)? I learned that you can't please everyone. Days after what I felt was a successful and smooth running of the course, I had an aid station worker telling me all the things that went wrong. After getting my feathers ruffled at first, I just listened, made a list in my head of what was a true complaint needing attention for next year, and a list of the things that was just someone who wanted to complain about something. I learned that over prepared is better than underprepared, which seems to go without saying. I learned that I got lucky for the 2<sup>nd</sup> year in a row not having to transport any athletes or deal with a major crisis. They can happen; look to this year's Chicago marathon where a runner collapsed to his death meters away from the finish line. And I have 100 miles of wilderness trail to keep a watch over. I just have to be as prepared as possible and trust in my staff to do the best they can with the situation that is presented to them.

Hopefully my story has inspired you to take on an event in your area. It is very gratifying to be a part of something that gives people joy and helps them achieve their goal. You'd be surprised how much spirit you can see in a person at mile 60 of a 100 mile event as you ask them how they are doing and they say "great, how are you?" It makes me want to give them a hug; instead I get them some potato chips and some bodyglide.

*Dr. Kelly Lange DC CCSP® practices in Ashland, Oregon. She is the Medical Director for the Pine to Palm 100 mile race as well as the 2<sup>nd</sup> Vice President for the ACA Sports Council. She treats many ultrarunners in her practice. She can be reached at [vicepres2@acasc.org](mailto:vicepres2@acasc.org).*

## Science Revisits the Lower Extremities

Adopted from Carol Marleigh Kline, JACA Online editor

Thomas Michaud, DC, says advanced technologies are opening the door to heretofore impossible biomechanical discoveries—and causing practitioners to reevaluate, expand, and sometimes abandon older theories. In this article he shares surprises at the leading edge of lower-extremity research. Dr. Michaud is the author of *Human Locomotion:*

*The Conservative Management of Gait-Related Disorders\** (2011). His private practice is in Newton, Massachusetts.

### The Ten Percent Rule

About 30 years ago, Dr. Tom Michaud says, orthopedists began to advise health practitioners to bring runners back to full capacity after suffering stress fractures by increasing their running practice distance by 10 percent a week. "In theory," he says, "that makes sense. But not out on the field. Say that the athlete is running

two miles every other day and you have him increase his running distance by 10 percent per week. Anyone who has ever treated long-distance runners knows that in the early stages of the ten percent rule, the increases are too small. If you had someone running two miles every other day, you'd only be increasing the distance by a quarter of a mile or less with each run."

Not only that, he says, but the ten percent rule does not take into account the complexity of the variables that show up from one athlete to the next. For one thing, "when dealing with stress fractures, it usually takes a period of time for osteoblasts to form and remodel the fractured bone. If you overload a fracture too quickly, it just keeps breaking down."

Dr. Michaud says a study in the *American Journal of Sports Medicine*<sup>2</sup> evaluated this rule a couple of years ago. What the study showed was that the ten percent rule made no change in the re-fracture rate. That rate was altered, instead, by diet, bone structure, and tibial dimension. Those with a smaller-than-average tibial diameter were more likely to develop tibial stress fractures. That factor, combined with less muscle mass in the



lower leg, turned out to be much more predictive of the likelihood of re-fracture. "What this means," he says, "is that there are so many variables that affect healing that having one broad-spectrum rule—that ten percent rule—is not appropriate. It has to be monitored and really tailored to the individual athlete. When I saw the *Sports Medicine* paper come out on the ten percent rule, I thought, 'Finally, someone's studying this.'"

Despite the fact that it does not work, says Dr. Michaud, health practitioners still recommend it. At a recent lecture on barefoot running, fractures, and healing, he heard the speaker advocate following the ten percent rule. Dr. Michaud says he remembers sitting in the audience, thinking, "You don't treat a lot of athletes, do you?" He says the ten percent rule just caught on and became mainstream. "It sounds good. It seems logical. But it's a terrible rule."

### Patellofemoral Disorders

Dr. Michaud says the science behind the management of patellofemoral disorders has undergone a complete transformation. "For the past 20 years, the focus has been

on the inner quad, the vastus medialis obliquus (VMO). The theory was that the weakness of the inner quad allowed the kneecap to shift to the side, which caused it to compress into the lateral femoral condyle, irritating the cartilage. And for 40 years now, treatment protocols have been emphasizing VMO exercises."

### VMO Exercises?

But for 15 years, he says, "practitioners have known that exercises that are supposed to target the VMO—toe-out leg extensions and adductor squeezes while performing wall presses—actually recruit the outer quad, the vastus lateralis, with more force than the inner quad." What happens, he says, is that a ratio is then created that worsens the potential for patellofemoral syndrome. "That's why most treatment protocols that emphasize VMO exercises have terrible outcomes." So why do it if it's counterproductive?

### Unstable Patella?

"The latest research is showing that it's not so much that the patella is shooting to the side. It's that hip weakness allows the femur to turn in excessively. The femur itself is

"With over 1,000 references and hundreds of illustrations, this is by far the most thorough text on lower extremity biomechanics currently available. Highly recommended, both for students and clinicians."

~Hylton Menz, PhD, Editor-in-Chief, *Journal of Foot and Ankle Research*.

"Without question, this is the most complete, evidence driven text on gait cycle disorders available anywhere in the world."

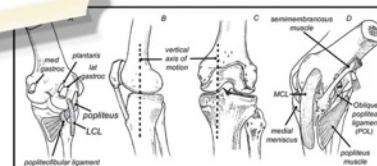
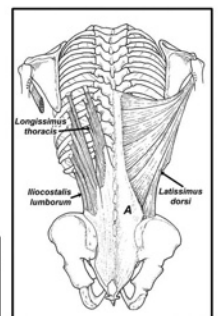
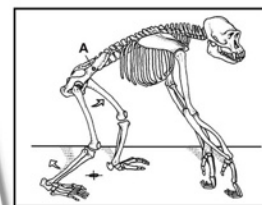
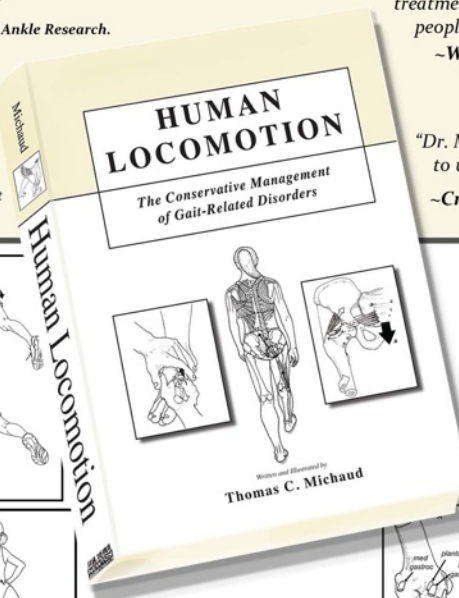
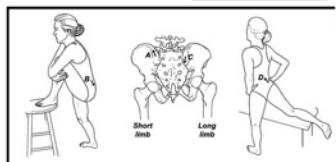
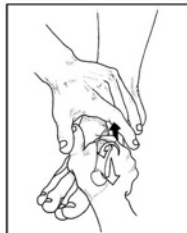
~Tom Hyde, DC, Editor of *"The Conservative Management of Sports Injuries"*, Williams & Wilkins Publishers.

"Congratulations Dr. Michaud for a text that finally explains everything we need to know about the gait cycle, it's evaluation, orthotics and treatment protocols. This book is a must read in our quest to help people live a more pain free life."

~Warren Hammer DC, MS, DABCO, Author of *"Functional Soft Tissue Examination and Treatment by Manual Methods"*, Aspen Publishers.

"Dr. Michaud's new book is a 'tour de force' for anyone wishing to understand the locomotor system."

~Craig Liebenson, DC, Author of *"Rehabilitation of the Spine: A Practitioner's Manual"*, Williams & Wilkins Publishers.



Now available to order online, a NEW text by Tom Michaud, author of *Foot Orthoses: Conservative Forms of Foot Care*. With more than 1100 references and 530 illustrations by the author, this text provides a detailed guide to manual therapies and discusses a wide range of conservative interventions.

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rotating into the patella. So the belief that an unstable patella is shifting laterally has been almost completely abandoned.” Dr. Michaud says that a recent study in the American Journal of Sports Medicine<sup>3</sup> “showed that the only people who respond well to VMO exercises are those with laterally deviated patellas. They tend to improve with high-quality VMO exercises, where the patient learns to isolate the VMO. Lateral stand-ups were shown to recruit the VMO a little better.”

#### *Retropatellar Pain Indicator*

Dr. Michaud says that the step-down test is a great indicator of retropatellar pain. “A paper on that topic just came out.<sup>4</sup> It’s one of the most important papers I’ve seen on managing patellofemoral pain syndrome.” He adds that although the average practitioner does not have 3-D imaging capable of showing a patient’s unique hip and femur motion, a simple in-office test will produce the same results. “Have the patient stand near the end of a 4-inch step and then slowly step off. You can see how the patient compensates—spinal, pelvic, or femoral rotation—and that correlates with three-dimensional motion studies.” Dr. Michaud says this functional test was so good at showing patellofemoral involvement that he rewrote a portion of the last chapter of his book in order to include it.

He also uses simple tools to get patients to work on rehabilitation at home. “I take a video of the patient. Then, I make a goal. I say, ‘This is what you are doing. And this is what I want you to fix.’” None of this comes as a surprise to patients, he says. “They all know it. I’ll ask, ‘Do you know what you’re doing?’ And they’ll say, ‘Yes, my leg’s twisting in. I can’t stop it.’” He tells patients to repeat the exercises in front of a mirror for three months while focusing on making the leg go straight. “In three months,” he says, “it’s often fixed. This test has a high interrater reliability so different examiners are able to identify the same movement flaw. And it gives you a way to monitor patient progress. From a clinician’s point of view, the illustration that appeared with that study is one of those once-every-five-years papers that change the way you practice” (Fig. 1).

#### **Rehabilitation Notes**

“With lateral step-ups to strengthen the hip, you can’t cheat easily. With a straight step-up, on the other hand, patients can tilt the upper body and load other muscles. They can recruit the gluteus maximus to help them get up on the step. But a lateral step-up forces them to isolate the knee a little better.”

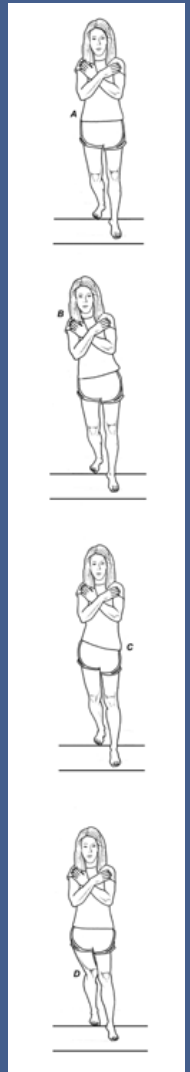
Practitioners know that certain exercises are not helpful, he says. “Squats and some lunges can cause increased joint pressure, which can irritate patellofemoral pain syndrome.”

Dr. Michaud says Escamilla’s long-step lunge<sup>5</sup> is a great first step in rehab. “Patients take a long lunge but keep their feet in place. They don’t move forward or backward in that lunge position. They just bend down into a slight lunge and then rise up while holding weights. Escamilla showed that particular exercise produced lower retropatellar compression forces” (Fig. 2).

**Figure 1. The dynamic single-leg squat test.** When the hip abductors are working properly, the lower extremity, pelvis, and spine remain well aligned while an individual steps off a 4-inch platform (A). When the hip abductors are weak, the individual accomplishes the step-down by tilting the torso ipsilaterally (B), by lowering the contralateral pelvis (C), or by experiencing valgus collapse of the ipsilateral leg (D). Modified from Crossley et al.<sup>4</sup> and reproduced from Michaud T. *Human Locomotion: The Conservative Management of Gait-Related Disorders*, 2011.



**Figure 2. The long-step forward lunge.** The individual maintains the feet in a fixed position while raising and lowering the body. Drawn from a photograph in Escamilla et al.<sup>5</sup> and reproduced from Michaud T. *Human Locomotion: The Conservative Management of Gait-Related Disorders*, 2011.



## ITB Helps Prevent Femoral Stress Fractures

Now that the iliotibial band (ITB) is seen for what it is—part of a sheet that runs behind the vastus lateralis and anchors firmly to the entire femur, says Dr. Michaud, it has taken on a much more significant role. “Its main function is to decrease bending forces of the femur while you’re standing. It’s hugely important in the management of femoral stress fractures.” Dr. Michaud adds, “If you put sufficient pressure on the femoral head, the femur would bow in response to that pressure. The ITB prevents that bowing.” No one anticipated that the ITB had that function, he says. “In fact, surgeons used to cut the band to prevent back pain not too long ago because they thought the ITB did nothing - that it just pulled on the outside of the knee. I had a patient whose surgeon cut her piriformis because she had piriformis syndrome. I met with the surgeon. He kept saying the piriformis is vestigial. And that’s what most textbooks will tell you- that it has no role in the gait cycle.”

## Bridge from the Past

Dr. Michaud’s long study of lower extremities has led him to a deep interest in bipedality—how early humans came to walk upright. He points to an article written by the paleoanthropologist Owen Lovejoy in the ‘80s.<sup>6</sup> “Lovejoy is the one who rebuilt the *Australopithecus* (aka Lucy) skeleton from 40 separate fragments. In order to

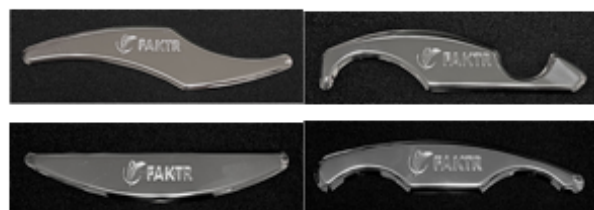
determine if Lucy walked, Lovejoy looked at the amount of cortical bone on the femoral neck. The femoral neck is the portion of the femur that shoots sideways before it attaches to the pelvis. It’s like the branch of a tree. Because it shoots sideways, if you push down on it, it will bend and break off.”

Dr. Michaud says chimpanzees’ femoral necks are made of pure cortical bone—as strong as a pipe—because they are exposed to huge bending forces. “Although chimpanzees’ femoral necks are extremely strong to resist bending, humans have paper-thin cortical bone surrounding their femoral necks. That’s because we have a piriformis muscle that traverses the femoral neck at such an angle that when it tenses, it creates a compressive force that stops the femoral neck from bending. That’s its function. No one knew that,” he says. “I only found that paper because the first chapters are on the evolution of bipedality, but I’ve never heard an orthopedic surgeon talk about it. Surgeons routinely cut the piriformis, saying that we don’t need it. Lucy’s cortical bone was midway in diameter between modern humans and chimps. So Lovejoy said she was upright half the time. It turned out he was right.”

## Achilles Tendinopathy

“Three-dimensional research has also improved our understanding of Achilles injuries. After comparing 3-D motion in people with and without Achilles injuries, Williams et al.<sup>7</sup> showed that people with Achilles tendinopathy do not externally rotate the leg during the latter half of stance phase. The authors suggest that the lack of external rotation is caused by weakness in the tibialis posterior. This weakness allows the rear foot to remain pronated during the propulsive period, causing the Achilles tendon to twist inwardly an excessive amount. To correct this movement flaw, I’ve created a closed-chain exercise where you put straps around the ankle and have the patient externally rotate against resistance provided by bands (Fig. 3). My outcomes improve significantly when I’ve done that,” Dr. Michaud says.

Figure 3. A closed-chain tibialis posterior exercise is performed by pronating and supinating the foot (arrows) with resistance provided by an elastic cord wrapped between the ankle straps. Reproduced from Michaud T. Human Locomotion: The Conservative Management of Gait-Related Disorders, 2011.



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"This paper was highly technical, but what's important about it is that it showed that if you could just get a patient to rotate the leg outward during propulsion, you would improve the lever arm afforded the Achilles tendon, which would then improve efficiency."

#### **Forefoot Varus Posts**

Dr. Michaud says that modern science has overturned yet another lower-extremity rule. This one has to do with forefoot varus posts. "A lot of foot/ankle experts have been using forefoot varus posts on orthotics to alter motion. In fact, some practitioners use forefoot varus posts on more than 87 percent of the people they treat with orthotics.<sup>7</sup> Cornwall et al.<sup>8</sup> showed forefoot varus posts don't correlate with pronation—some people possessing forefoot varus alignment actually supinate excessively." Dr. Michaud also says that different examiners can't agree as to whether or not a forefoot varus is even present, as the interrater reliability for taking this measurement is unacceptably low.<sup>8</sup> Nonetheless, practitioners are still using forefoot varus posts all the time. "I didn't even include forefoot varus posts as a classification in the latest edition of the book. I used to use forefoot varus posts, thinking they lessened propulsive period pronation, but when I found out they didn't alter motion, I stopped using them."

#### **Force Transmission Changed**

The typical treatment for acute or subacute compartment syndrome is often fasciotomy. But, says Dr. Michaud, doctors need to know that the consequences of that surgery are considerable. "Fascia plays an important role in force transmission," he says. "When surgeons do fasciotomies to treat compartment syndrome, patients have significant reductions in strength post-operatively. What this shows is how the fascia reinforces the transfer of force from the muscle to the joint itself. If one part is not functioning properly, the other part will have to work excessively. Rather than cutting the fascial envelope to lessen compartment pressure, a better approach is to reduce fascial tightness with aggressive deep tissue massage. Although currently unproven," says Dr. Michaud, "future studies will hopefully confirm that compartment pressures can be effectively reduced with manual therapy." ■

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