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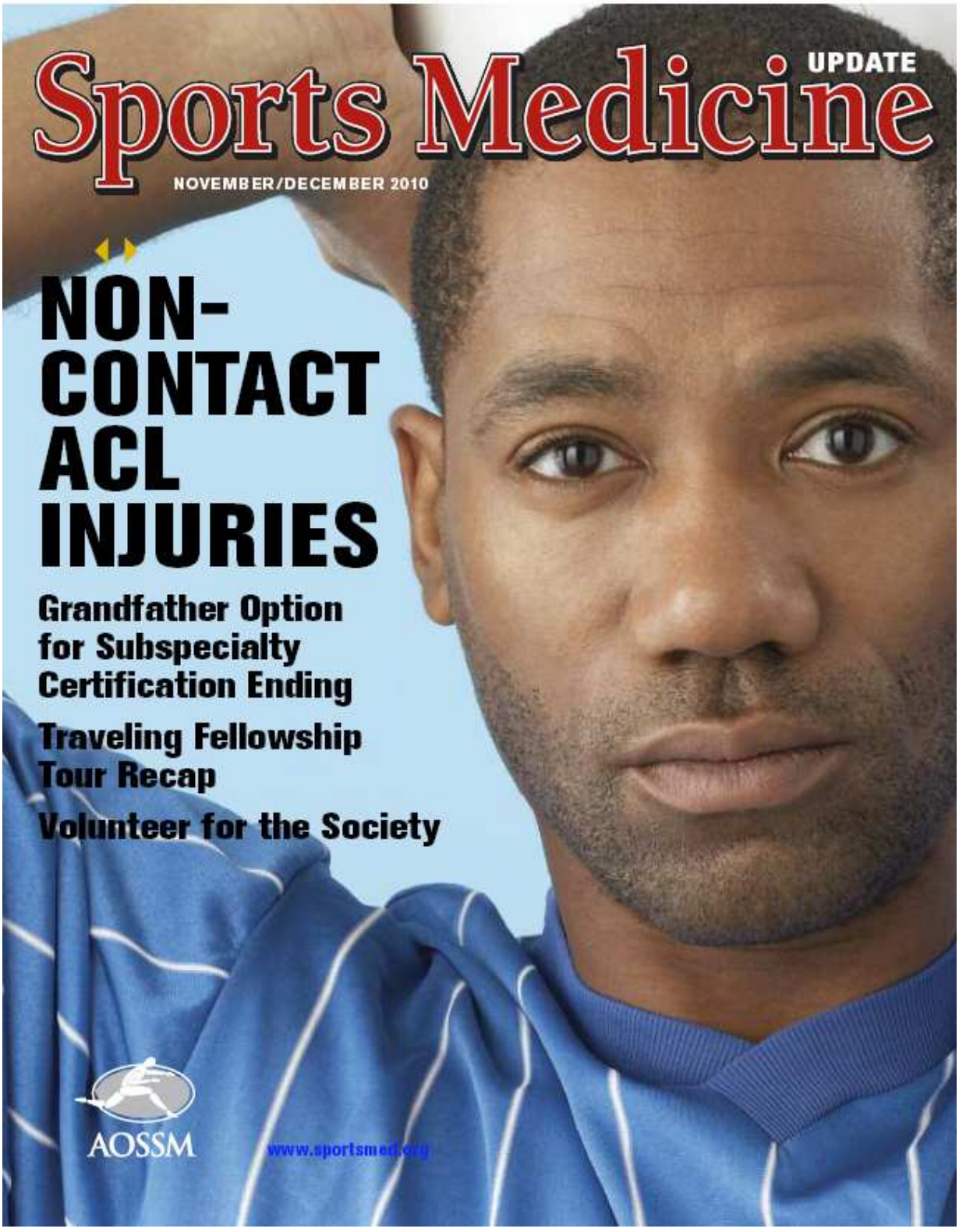

NON-CONTACT ACL INJURIES

Grandfather Option for Subspecialty Certification Ending

Traveling Fellowship Tour Recap

Volunteer for the Society

AOSSM

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demonstrated a reduced risk of sustaining an ACL injury with training programs focused on lowering the knee abduction moments.[8] In addition, Chaudhari and Andriacchi[9] demonstrated that increasing the valgus alignment by 2° lowered the compressive load threshold for ACL injury by 1 body weight. Therefore the higher Q-angle and abduction moments in female athletes likely increase the axial forces on the lateral aspect of the knee lowering the threshold for ACL rupture, thus explaining why female athletes have a higher incidence of ACL injury than male athletes.

Quadriceps Force

Chappell et al. postulated that the anterior vector of the quadriceps is the primary contributing force to ACL injury, as it is one of the primary producers of anterior knee force at or near full knee extension.[10] However, due to the shallow angle of the patellar tendon (10 to 25 degrees at full extension),[11] the quadriceps primarily generates a compressive tibio-femoral joint force and the anterior force is only a minor component (Figure 4). The compressive vector of a quadriceps contraction is at least twice that of the anterior shear vector with the knee close to full extension.[11] In addition, the bone bruises seen on MRI after non-contact ACL injury are more consistent with an impaction injury than the application of excessive anterior force. Therefore, it is more likely that a quadriceps contraction contributes to ACL injury by increasing the compressive loads on the tibiofemoral joint rather than through the introduction of a large anterior force.

Figure 4. Figure demonstrating the angle of the patella tendon attaching to the tibial tubercle. Since the angle is low (less than 45°) the compressive vector (Fc) is larger than the anterior shear vector (Fas). (Reprinted with permission from Boden BP, Torg JS, Knowles SB, Hewett TE. Noncontact Anterior Cruciate Ligament Injuries: Mechanisms and Risk Factors. *JAAOS*. 18(9):520-527, 2010.)

Summary and Conclusions

In conclusion, the authors propose that the primary force resulting in non-contact ACL injury is an external impulsive axial force. The provocative position of initial ground contact in or close to a flatfooted position (reduced ankle plantarflexion) and increased hip flexion predisposes the knee to an ACL disruption by reducing the legs damping capabilities and by placing the lateral tibial compartment closer to the subluxed position. Knee abduction (valgus) also may play a role, especially in female athletes, by potentially reducing the compression force threshold to produce a non-contact ACL injury. While anterior shear forces from the quadriceps may play a role in disruption of the ACL, it is more likely that a quadriceps contraction lowers the axial threshold of injury by increasing the compressive force on the knee. Therefore, it is probable that the mechanism causing noncontact ACL injury simulates the pivot shift test in ACL deficient patients. Although further research is necessary to understand the importance of the varying components of ACL injury, the mechanism of non-contact ACL injury is becoming clearer and should result in enhanced preventive strategies.

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HOME

ESSKA-AOSSM
Traveling Fellowship Tour 2010

THE 2010 ESSKA-AOSSM TRAVELING FELLOWS included Godfathers William Clancy, MD, from the Andrews Sports Medicine and Orthopaedic Center, and Lonnie Paulos, MD, from the Andrews-Paulos Research and Education Institute, as well as fellows Warren Dunn, MD, MPH, from Vanderbilt, Brian R. Wolf, MD, MS, from the University of Iowa, and Diane Dahm, MD, from the Mayo Clinic.

The traveling fellowship started in Amsterdam after a smooth flight over the pond. We met with the always energetic Gino Kerkhoffs for lunch and wonderful land and water tours of the city. After a trip to the Vincent Van Gogh Museum, Professor Niek Van Dijk hosted us at the AMC Hospital for an excellent research symposium. Our hosts Niek and Gino also gave us the opportunity to observe some foot and ankle surgeries—they certainly made some difficult procedures appear easy. From there we took to the beautiful countryside for a leisurely bike ride before the end of our stay in Holland.

Our trip continued in Luxembourg, where we spent time with Professors Romain Seil and Dietrich Pape performing osteotomies in the sawbones lab and touring their impressive research facilities. We later observed hip arthroscopy surgeries with Matthias Kusma and Oliver Steimer before attending an interesting scientific session on molecular strategies for cartilage repair, organized by Professor Henning Madry. A memorable evening's dinner at the top of the Sofitel provided a spectacular view of Luxembourg Village while we dined on fois gras, dorado, and champagne. Another evening we trekked to Mannheim for the quarter finals of the World Cup Ice Hockey Championships (Go Deutschland!). A big fight occurred at the end of the game, which had us Americans feeling right at home. Professor Dieter Kohn later entertained us with slides of his traveling fellowship, which we capped off with cigars and bourbon as Dr. Clancy taught us some unforgettable pearls of wisdom. We rounded out the fun with a 20 kilometer bike ride through the beautiful Luxembourg countryside. We then had dinner and drinks with Romain and his wife, Katia, before departing for Porto to meet with Professor Joao Espregueira-Mendes.

While in Porto, aside from enjoying some excellent port, we visited the Hospital Santa Maria to participate in an inspiring academic session followed by a spectacular lunch overlooking the city. We also met with Professor Espregueira-Mendes and Pedro Veranda, who demonstrated a technique for revision anterior cruciate ligament reconstruction and a perfectly executed tibial tubercle medialization procedure. Other tours included the impressive multispecialty clinic and the famous FC Porto Stadium, which was a great place to buy gifts to bring home, including FC Porto soccer jerseys for the kids.

Professor David Dejour and Professor Philippe Neyret met us at our next stop in Lyon. We saw a number of procedures during our visit, including patellofemoral surgery, ACL reconstruction, and cartilage restoration with Professors Neyret and Elvire Servien at the University Centre Albert Trillat. Bertrand Sonnery-Cottet further impressed us with his technical expertise while performing an ACL reconstruction and a medial patellofemoral ligament reconstruction at the Centre Orthopedique Paul Santy. We also enjoyed a spirited discussion between Drs. Clancy and Chambat regarding the bundles of the posterior cruciate ligament—watching the distinguished professors "go at it" was great fun! Our last day in Lyon included an academic session at the Clinique de la Sauvegarde and a fabulous outdoor barbecue at Professor Dejour's home. None of us was quick enough to catch a sheep, but thankfully David De Jour had invited an anesthesiology colleague who had no difficulty taking one down for us to shear!

Temporarily godfather-less, we boarded the train and made it to Geneva where we met Professor Daniel Fritschy and Jaques Menetrey. We spent some great time with our new godfather, Dr. Lonnie Paulos, and brought him up to speed on the events of the past two weeks. Our next day was one of the most relaxing of the trip, beginning with a morning walk around the old city followed by a fascinating tour of the Red Cross Museum. After an afternoon at the Cressy Center (where Diane was the sole volunteer for V02 Max testing) we were treated to an outstanding fondue dinner at Daniel and his wife, Marika's, home—complete with gruyere cheese from Jaques's hometown, fresh strawberries for dessert, and some of the best cigars of the trip from the professor's private collection. Both professors invited

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us to the operating room to observe a distal femoral osteotomy procedure with Daniel and a challenging knee dislocation case that Jacques handled with great finesse. Our stay ended after some shopping (mostly window shopping) for Swiss watches before we boarded the train to Milan.

Professor Pietro Randelli picked us up in Milan after a picturesque train ride from Geneva. The next morning provided a great learning experience in the operating room with Pietro and Professors Matteo Dente, Piero Volpe, and Alex Castana, and included double bundle ACL reconstruction, posterolateral corner reconstruction, rotator cuff and labral repairs. As an added bonus we participated in an outstanding scientific session with the SLARD fellows. During our stay we spent a day in Milan's famous shopping district, where we visited the Ferrari Store, followed with some sightseeing at the Teatro de Scala and famous Milan cathedral. Other highlights included a stop at the Monza Racetrack (where we got to see part of a race), and a beautiful air tour of Lake Como.

We then moved on to Heidelberg, where a stretch limousine stocked with cold German beer awaited our arrival.

We began our Heidelberg stop with Professors Rainer Siebold and Hans Pessler enjoying a lovely dinner including some excellent German white wine and the famous white asparagus, followed by a stop at Hans Pessler's house for a Cuban cigar. During the rest of our time, we enjoyed another excellent scientific session, a fascinating surgery at the ATOS Clinic, and a tour of the Heidelberg Castle. Wish we could have stayed longer!

The fellowship tour ended with our last stop in Oslo. We were excited to meet up with all our previous hosts and the friends we met along the way. We had our final dinner with Lonnie and his wife, Shannon, as they prepared to leave the next morning. Brian and Warren's wives, Laura and Missy, arrived and joined us for the president's dinner where we met Lars Engebretsen for another fantastic evening. This was truly a once in a lifetime experience, and we are very grateful to all of the hosts for their kind and generous hospitality.

At every stop, we were enriched professionally, culturally, and socially. Our sincere thanks goes out to DJO for their continuing support of the traveling fellowship, all of our hosts during this tour, Brigitte Melchior-Dolenc (ESSKA), and Debbie Turkowski (AOSSM) for their coordination of the traveling fellowship tour, the AOSSM Traveling Fellowship Committee, and all of the others who made this wonderful experience possible. We look forward to seeing you all at future meetings and to hosting traveling fellows in the future!

DJO

To the Editors of *Sports Medicine Update,*

I read with interest the article on acute patellar dislocation (September/October 2010) and came away with the impression that surgical intervention was for many patients the treatment of choice based on the current literature. I have given a talk on patellar instability problems for some time and am familiar with the literature quoted in the discussion and believe that for the overwhelming majority of patients non-operative management is the treatment of choice and if there is a choice you can rarely go wrong with such management barring a large osteochodral fragment and injury.

The pendulum in the last 2–3 years has swung toward MPFL reconstruction and I believe will swing back as the complications and morbidity from such reconstruction become apparent with its widespread use. The paper I have found most valuable in assessing this issue by Nikku et al[1], which was actually the second of 2 papers written on the topic. The first was an initial 2-year evaluation published in 1997.[2] The second, published in 2005,[1] was written as a follow-up with the conclusion that the redislocation rate was the same for operative and non-operative management. In addition, the Palmu et al[3] study gave the same result and conclusion for children and adolescents.

I have learned there is very little new in orthopaedic management. One thing I know is that, except in very specific circumstances and for very specific indications, acute ligamentous injury can be treated non-operatively with long-term morbidity not much worse than the operative option. Jack Hughston said, "There is nothing so bad it can't be made worse by surgery."

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