The 5th Biennial ISAKOS Congress: KEYS TO SUCCESS

The 5th Biennial ISAKOS Congress held in sunny Hollywood, Florida, from April 3 through April 7, 2005 was a great success. Over 1,500 surgeons representing 65 countries were in attendance. The ISAKOS Program Committee, under the direction of Program Chair, Christopher Harner (USA), developed an excellent program. The program included over 190 papers covering a wide range of topics including current and new approaches in sports injuries and arthritis of the knee, shoulder, elbow, hip and ankle. New technology highlights included double bundle ACL and PCL, minimally invasive joint arthroplasty, unicompartamental arthroplasty, hip arthroscopy and computer assisted surgery. These were brought together through podium presentations, symposia, instructional course lectures and live surgical demonstrations.

All presentations reflected the vitality and variety that have become the hallmark of ISAKOS.

A special thanks to John Bartlett (Australia), the past program chair and Lars Engebretsen (Norway), the 2009 Program Chair for their assistance in the program development.

The ISAKOS Board of Directors and Program Committee members also wish to extend their sincere gratitude to all who participated at the congress. The diverse topics and international perspective is the key to a successful congress.

2005 ISAKOS CONGRESS
All paper abstracts, poster abstracts and handouts from each instructional course lecture are available online at www.isakos.com.

2007 ISAKOS CONGRESS
The call for abstracts will be available in September 2005. Visit the ISAKOS website for continuous updates on the 2007 Congress.
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Editor’s Note
Ronald M. Selby, MD, USA
A Global Family
Connectivity and harmony radiated from the Biennial Congress in Hollywood, Florida. We share some interesting statistics in this issue regarding the distribution and diversity of ISAKOS Congress attendees. It is truly a global family—your global family.

It would be a major injustice not to note the superb, cutting edge science reported from top investigators in the world in the areas of knee surgery, arthroscopic and related surgeries, minimal incision surgery, orthopaedic sports medicine, biomechanics, tissue engineering. Kudos to our outgoing President, Per Renström (Sweden), as well as Program Chairman, Chris Harner (USA), the Program Committee, and ISAKOS Staff for a job well done!

Elsewhere in this issue read about many of the breakthrough scientific sessions and the wonderful educational experience that the biennial congress afforded the attendees. The venue at the brand-new breathtaking Western Diplomat Hotel on the beach in Hollywood, Florida was top rate in every aspect. The convenience of the conference rooms and meeting areas to the hotel rooms was outstanding. Also, please note the review submitted by Alberto Gobbi (Italy) on the Tissue Engineering Symposium provided as a pre Congress meeting at Wake Forest University. Hosted by former ISAKOS President, Gary Poehling (USA), this pre meeting featured preeminent research scientists as well as Orthopaedic clinicians presenting work on the cutting edge pointing to the future potentials of tissue engineering.

The packets of information given to meeting registrants was itself staggering in volume, timeliness, and material apropos to the practice of orthopaedic surgery. In addition to the meeting syllabus, booklets, books and CDs were provided. The dissemination of information as well as support and encouragement of consensus meetings, workshops, and research in relevant orthopaedic fields by ISAKOS is truly impressive and a point about which we all may be proud.

(continued on page 25)

President’s Message
John A. Bergfeld, MD, USA
Dear Friends of ISAKOS,
It is often said, when describing a present situation that “we stand on the shoulders of giants.” I certainly have that feeling as I assume the Presidency of the International Society of Arthroscopy, Knee Surgery and Orthopaedic Sports Medicine. As I look over the accomplishments of our organization since its inception 10 years ago and especially the past 2 years, I feel anticipation and a deep responsibility to carry on our mission to “Enhance the worldwide exchange and dissemination of education, research and patient care in arthroscopy, knee surgery and orthopaedic sports medicine.”

In the past 2 years we have completed a successful capital campaign, participated in clinical workshops in India, Argentina, Brazil and China. We have had successful Consensus Conferences on Ankle Instability in Hong Kong, Treatment of the Early Arthritic Knee in California, the Posterior Cruciate Ligament in Florence, Italy, under the directions of our committees.

Our committees are presently working on Minimally Invasive Knee Surgery and Arthroscopic Anatomy and Elbow Instability Consensus Conferences. Of particular interest is the work of our Scientific Committee to help us understand and work with evidence-based medicine. Workshops/clinical courses will occur this year in Mexico, Russia, and Argentina in association with our regional associates, ESSKA and SLARD.

Our committee structure has been stabilized. Each committee has been given specific charges for the next two years. We are in the process of reviewing and updating our bylaws. Our Journal, Arthroscopy: The Journal of Arthroscopic and Related Surgeries, is mutually beneficial to both ISAKOS and AANA.

(continued on page 25)
YOUR COMMITTEES AT WORK

ISAKOS COMMITTEE MEMBERS APPOINTED
Following the ISAKOS Congress in Hollywood, Florida, the Committee on Committees and ISAKOS President John Bergfeld announced the 2005–2007 committee members.

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MEMBER CHALLENGE

This is a critical time in the development of ISAKOS Membership. We depend on our members to make the society what it is today and to embrace the potential it has in the future. We continue to challenge all current members to recruit one **NEW** member to join ISAKOS and its Global Campaign to reach across the world.

**IT’S EASY!**

Take an application with you when you travel and talk about ISAKOS. Tell others about the opportunities and benefits of being an ISAKOS member. Encourage them to look at the ISAKOS website at www.isakos.com.

ISAKOS MEMBERS RESPOND TO THE TSUNAMI

*Savio Woo, PhD, DSc (USA)*

It is estimated that four times as many people were injured in the South Asian tsunami as were killed. To aid survivors, a team of orthopaedic surgeons traveled to Sri Lanka this term, armed with orthopaedic implants and other equipment purchased with contributions from Pitt students, faculty, and staff.

The fundraising effort began when students, fellows, faculty, and staff of Pitt’s Musculoskeletal Research Center along with Pat Loughlin, interim chair of the School of Engineering’s Department of Electrical and Computer Engineering, contributed a total of $2,500. That gift was matched by Savio L-Y. Woo (USA), the W.K. Whiteford Professor in the Department of Bioengineering, and his wife, Pattie, raising the total to $5,000. The Asian American Institute for Research and Education, in turn, matched that amount, increasing the total contribution to $10,000. Finally, Harvey Borovetz, chair of the Department of Bioengineering, committed $1,000 from his department to take the total to $11,000.

The money was given to the Asia Pacific Orthopaedic Association (APOA) because contributors believed APOA “could do more good than any other organization to help those that need significant orthopaedic care,” said Woo. “The members of APOA under the presidency of Professor Myung-Sang Moon of South Korea have the expertise and closest ties to patients suffering from orthopaedic trauma.”

Woo said he hopes the Pitt contributions to APOA will inspire more support for tsunami victims. “The small sum of donation from us may serve as a pilot light to generate a much larger source of donations from the members of APOA,” he said.

One of the doctors, who went to Sri Lanka, K.S. Sivananthan, past president of the APOA, concluded that the lack of orthopaedic expertise in Sri Lanka leaves many cases that need to be attended to. He observed that the country’s civil war, in addition to the tsunami, has burdened the population with many orthopaedic problems and neglected trauma cases.

As a result of the MSRC’s contribution, the Board of Directors of the APOA have decided to match the contribution in the amount of $10,000. The total contribution will be equally distributed between the three most devastated countries, namely Sri Lanka, Thailand, and Indonesia.
WHAT ARE NEW Members Saying?

QUESTION 1:
What role does ISAKOS play in your practice, community, region or nation? As ISAKOS grows, what future role would you like to see it play? How could ISAKOS be a better asset to you?

ANSWER:
ISAKOS provides a unique opportunity for orthopaedic sports medicine physicians, arthroscopists, and knee surgeons to exchange ideas, research, surgical techniques, and clinical outcomes between countries throughout the world. Here in the United States and I am sure this is true in other countries, we sometimes have the tendency to be isolationists in terms of our practice—which I think is a limitation. It is in this arena that ISAKOS serves to improve the way we practice medicine and surgery, by sharing on the experience of the entire world community. The European experience, the Asian experience, the South American experience, the North American experience—They all vary greatly and together provide insight and knowledge much more comprehensive than can be provided by any one community alone. As ISAKOS grows, I would like it to continue to foster open communication between countries and bring them together in order to expand our knowledge by benefiting from the experience of others throughout the world.

Jon Sekiya, MD
Chesapeake, Virginia, USA
Member Since April 2005

QUESTION 2:
What do you see as being the greatest challenge(s) that ISAKOS faces? What is/are its greatest strength(s)?

ANSWER:
I think the greatest challenge to ISAKOS is global research, integrating centers around the world to achieve answers to some question about sports medicine, knee and arthroscopy. The great strength is to be a worldwide society, with participants in five continents, giving the members the possibility to visit different centers with different methods and ideas and participate in global meetings.

Wagner Castropil, MD
São Paulo, BRAZIL
Member Since March 2005

QUESTION 3:
Which past ISAKOS congress did you attend? What impressed you most about it? When you came home and told peers about it, what did you emphasize? What would you improve?

ANSWER:
I’m practicing as an orthopedic in Seoul, Korea, after completing my residency and working as a fellow specializing in the knee joint at Hanyang Medical University in Seoul, Korea.

I’m grateful that I could take part in the 2005 ISAKOS conference, where I had a chance to listen to a number of impressive presentations given by great doctors from all over the world. From the presentations based on many doctors’ own experiments and research, I learned a lot more than I expected, including the answers to many questions I had during my own operations.

Now, I’m applying what I’ve learned in the conference to my operations in Seoul, and I’m also recommending the ISAKOS conference to my colleague doctors. I’m very proud to be a member of ISAKOS and looking forward to the next ISAKOS conference in 2007.

Suk-Keun Kang, MD
Seoul, KOREA
Member Since April 2005
TEACHING CENTER SPOTLIGHT

SPORTS INJURY

and Arthroscopy Clinic

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COURSES OFFERED IN THE CENTER:
Our center offers one-month introductory observership courses for post-graduates in orthopaedic surgery under the auspices of World Orthopaedic Concern, throughout the year. This is offered to maximum one candidate per month. Our center is also approved for a 6-month fellowship in arthroscopy and sports medicine by the Asia-Pacific Orthopaedic association. We also conduct courses for trainees sent through Indian Arthroscopy Society fellowship programs and Smith & Nephew. We are currently planning to start a one year postdoctoral certification course in arthroscopy, approved by the National Board of Examinations. In addition to these courses, surgeons from the center are actively involved in conducting conferences and workshops.

ORGANIZATION OF CENTER:
The sports injury and arthroscopy center was started in 1992. Dr. David V. Rajan (India) is the director of the center and is an exclusive arthroscopy and sports medicine specialist. His fields of interest include multiligament knee injuries and shoulder arthroscopy. Dr. K. Vinodh looks after open knee surgeries, knee replacements, open reconstruction of knee and shoulder. Dr. Murugan is our MR radiologist and Dr. Palanichamy, consultant physiatrist directs the rehabilitation program. Dr. Clement and Dr. Aravinda are associate orthopaedic surgeons. Other team members include two physiotherapists, five staff nurses and two theatre technicians. Surgeries are done Monday through Saturday starting from 8:00 am. Outpatient department functions in the mornings are from 10:00 am to 11:30 am and then in the evenings from 5:00 pm to 7:00 pm. Ward rounds are made in mornings and in late evenings. On an average 50 to 60 surgeries are performed per month. Most of the clientele are referred from other centers and athletes of state teams.

TWO NEW TEACHING CENTERS

NEW SASSUOLO HOSPITAL
Via Ruini 2
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Contact: Dr. Luigi Pederzini
Phone: +335 522 2990
e-mail: gigiped@hotmail.com

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Calle 40 No. 482
La Plata 1900
ARGENTINA
Contact: Vicente Paus
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Fax: +54 221 421 2529
e-mail: pausagarra@infovia.com.ar

To see a complete listing of all Teaching Centers please visit www.isakos.com/teaching.
ISAKOS AND HOLLYWOOD
DRAW A STRONG FOLLOWING

The 2005 ISAKOS Congress in Hollywood, Florida proved that ISAKOS has a strong and dedicated following. Delegates traveled great distances to attend the April Congress.

Over 1800 attendees traveled to Hollywood.

ATTENDEES IN HOLLYWOOD

DIVERSITY OF ATTENDEES
KEY TO SUCCESS

True to ISAKOS tradition, a wide array of attendees traveled from every corner of the world. With over 1,500 surgeons in attendance Brazil boasted the largest contingent of attendees, with 214 surgeons. However, Europe displayed the largest attendance per continent with 517 surgeons.

ATTENDEES BY CONTINENT

COUNTRIES REPRESENTED

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NUMBER OF COUNTRIES REPRESENTED

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AWARD WINNERS

JOHN JOYCE AWARD

- Sponsored by Smith & Nephew
- For the Best Arthroscopy Paper read during the scientific program. In 1981, Dr. John J. Joyce offered a monetary prize for the best arthroscopy paper read during the Scientific Program of the 4th Congress of the International Arthroscopy Association in Rio de Janeiro. He endowed a prize to be awarded at every IAA congress thereafter
- Selected by the ISAKOS Arthroscopy Committee

Third Place:
“Females Demonstrate Unsafe Landing Kinematics During Lateral Jump Landing Tasks Implicated in Noncontact ACL Injuries”

**Timothy Sell** (USA), Cheryl Ferris, John Abt, Yung-Shen Tsai, Joseph Brian Myers, Freddie Fu, Scott Lephart

Second Place:
“Free Soft-Tissue Allografts Show Delayed Revascularization and Restoration of Their Biomechanical Properties in Comparison to Autograft ACL Reconstructions”

**Sven Scheffler** (Germany), Tanja Schulz, Frank Unterhauser, Andreas Weiler

First Place:
“Single versus Double-Bundle Anterior Cruciate Ligament Reconstruction Using Multi-stranded Hamstring Tendons”

**Nobuo Adachi** (Japan), Mitsuo Ochi, Yuji Uchio, Junji Iwasa, Masataka Deie, Masakazu Kuriwaka, Yohei Ito

RICHARD CASPARI AWARD

- Sponsored by DePuy Mitek
- For the Best Upper Extremity Paper read during the scientific program.
- Selected by the Upper Extremity Committee

Second Place:
“Immobilization in External Rotation after Dislocation of the Shoulder. Randomized Clinical Trial”

**Eiji Itoi** (Japan), Tatsushi Kamata, Koji Nozaka, Yuji Hatakeyama, Takeshi Sato, Tadato Kido, Hiroshi Minagawa, Nobuyuki Yamamoto, Ikuo Wakabayashi, Moto Kobayashi, Hidetomo Saito

First Place:
“Arthroscopic Single versus Double Row Suture Anchor Rotator Cuff Repair”

Augustus Mazzocca, Peter Millett, Stephen Santangelo, **Robert Arciero** (USA)
PATELLOFEMORAL RESEARCH EXCELLENCE AWARD

- Established in 2003 to encourage outstanding research leading to improved understanding, prevention and treatment of patellofemoral pain or instability.
- Sponsored by The Patellofemoral Foundation
- **Winner:** John Elias (USA) “Tension in a Reconstructed MPFL Could Overload Medial Patellofemoral Cartilage”

PATELLOFEMORAL TRAVELING FELLOWSHIP

Patellofemoral 2005 & 2006

The 2005 and 2006 winners of the ISAKOS Patellofemoral Traveling Fellowships, funded by the Patellofemoral Foundation. Please visit www.patellofemoral.org for more information on the Patellofemoral Foundation.

- This travel award is to promote better understanding and communication regarding patellofemoral pain.
- Sponsored by The Patellofemoral Foundation
- **Winner for 2005:** Karl Almqvist (Belgium), presented on his recent trip
- **Winner for 2006:** Ryosuke Kuroda (Japan), will present on his trip at the 2007 Congress

ALBERT TRILLAT YOUNG INVESTIGATOR’S AWARD

For the young researcher who has made outstanding clinical or laboratory research contributions to the understanding, care or prevention of injuries to the knee. This award is in memory of Professor Albert Trillat, past president and founder of ISK.

- Selected by the ISAKOS Knee Committee
- **Winner:** “Mechanical Properties of the Articular Cartilage Covered by the Meniscus”

ACHILLES ORTHOPAEDIC SPORTS MEDICINE RESEARCH AWARD

- For the researcher who has performed the most outstanding clinical or laboratory research in the field of orthopaedic sports medicine
- Sponsored by Aircast, Inc.
- Selected by the ISAKOS Orthopaedic Sports Medicine Committee
- **Winner:** “A Bioscaffold Can Enhance the Healing of the Medial Collateral Ligament: A Multidisciplinary Functional Tissue Engineering Study”

Rui Liang (USA), Steven D. Abramowitch, PhD, Daniel K. Moon, BS, Fengtan Jia, MD, Savio L-Y. Woo, PhD, DSc, Pittsburgh, PA, USA
ISAKOS offered a series of live surgical demonstrations on cadavers to all Congress attendees. In addition, a series of workshops and lectures allowed attendees to gain hands-on experience while learning the latest innovations in technology.
The ISAKOS Congress in Hollywood clearly showed us the value of “Traditional Instructional Course Lectures.” ICL number 3, Arthroscopic Management of Intra-Articular Fractures, chaired by M. Nedim Doral MD, focused on the arthroscopic treatment of intra-articular fractures in different joints. The faculty consisted of Özgur Ahmet Atay, MD (Turkey), Gürsel Leblebicioglu, MD (Turkey), Onur Telik, MD (Turkey), Murat Bozkurt, MD (Turkey), Tommy Lindau, MD (Sweden), David Ruch, MD (USA), Gary Poehling, MD (USA), David Caborn, MD (USA), John Nyland, PT (USA) and presented several aspects of arthroscopic approaches to intraarticular fractures of the shoulder, knee, elbow, wrist and ankle.

The indications, techniques, results and rehabilitation methods were discussed in detail. Interactive case discussions in the last part of the panel were very stimulating both for the audience and the presenters.
Attendees and guests crowd the 2005 Congress Welcome Reception.

Stefan Edberg speaks on the Road to the World Tennis No. 1 Ranking.

Per Renström, 2003–2005 ISAKOS President, thanks ISAKOS for the opportunity to serve as president during his two year term.
Per Renström, 2003–2005 ISAKOS President, welcomed all international society presidents to the Congress with a presentation (left) and then a breakfast (right) on Tuesday morning.

Per Renström joins with Christopher Harner, 2005 Congress Program Chair (above), and John Bergfeld, 2005–2007 ISAKOS President (below), to conclude another successful ISAKOS Congress.
Shoulder Arthroscopy
IN FIRST TIME GLENOHUMERAL DISLOCATION

PH. HARDY, MD, PHD, PR
*Ambroise Paré Hospital
West Paris University
9, Avenue Charles de Gaulle
92100 Boulogne
France

Treatment options in first episode of glenohumeral instability remain controversial. The glenohumeral joint is the most unstable joint leading to a high frequency of this pathology. The study of natural history of first time dislocation has been made in many articles but in mainly looking at redislocation recurrence and not at apprehension or subluxation. Most of recurrences occur within two years. Glenohumeral instability is a lot more complex problem and using only redislocation as a critical factor is not enough. This is why quality of life index dedicated to shoulder instability has been developed. Only few prospective and randomized studies have compared arthroscopic and conservative treatment of the first episode of shoulder instability and showed a highly significant difference for patients under thirty year old. This difference was in favor of the arthroscopic treatment. The French Orthopedic Society has conducted a symposium on shoulder anterior instability long term results comparing various open and arthroscopic treatments. Results were comparable in term of glenohumeral arthritis. It was more the gravity of the initial instability (bony lesions, number of dislocations) that influences the functional prognosis both clinical and radiological. Several arthroscopic studies have been made in first episode of instability looking at intraarticular lesions. Major injuries were found not only on the anterior labrum (Fig 1) and the Inferior Glenohumeral Ligament but also on the superior labrum (SLAP Lesions) and major osteochondral fractures. Chronic shoulder instability will lead to a progressive plastic deformation on the capsulolabral structures. This is why the surgical treatment has to deal with this problem using capsuloplasty or bone block procedures. Conservative treatments of the first dislocation are not precisely defined in terms of length of immobilization, type of immobilization, and rehabilitation. Recurrence rates for patients under thirty is 40%. We do not have a large experience on the immobilization in external rotation. We have tried this treatment but patients have complained of pain if the external rotation was greater than 10 degrees, and the logical position would be external position and abduction. The arthroscopic treatment can be made under local regional anesthesia in an outpatient setting. Fixation of good quality tissue is easy without any need for capsuloplasty (Fig2). Results of arthroscopic treatment have shown a recurrence rate between 10 and 13%.

The arthroscopic treatment in the first episode of traumatic shoulder instability is an option that has to be proposed to our patients. In high level athletes in high risk sports associating overhead activity and contact (rugby, judo...) arthroscopic treatment of a truly posttraumatic injury is the treatment of choice. These athletes expect to be off the field for a 4 month period but they want to be sure that their shoulder is stable when they go back to sport. For other patients younger than 30 the arthroscopic treatment should remain as an option that has to be proposed to the patient. All around the world conservative treatment is induced with a failure risk higher than 50% without proper patient information and without giving the patient the other option. If the first option has been a conservative treatment our attitude is to treat arthroscopically any recurrence of instability (apprehension, subluxation, dislocation) within two years after the first episode.

Full article and references also available online at www.isakos.com

Fig 1: Acute APLSA lesion (Anterior view left shoulder)

Fig 2: Anterior fixation of the labrum with anchors (right shoulder posterior view)
Articular sided partial rotator cuff tears have been identified very commonly in throwing athletes, most frequently in association with other shoulder injuries, especially superior glenoid labral tears. It was originally thought that the rotator cuff lesions were caused by “internal impingement” of the articular surface of the rotator cuff against the superior glenoid. However, just as with “external” impingement, “internal” impingement is now being regarded as a symptom, secondary to altered mechanics in the scapuloglenohumeral articulation.

One proposed causative mechanism of the altered glenohumeral mechanics is acquired anterior micro-instability due to stretching of the anterior capsule. This capsular stretch would allow the glenohumeral articulation to move into a “hyperangulation” position of increased external rotation and horizontal abduction and create the rotator cuff lesion due to mechanical impingement. However, there is no hard scientific evidence that this occurs, and treatments based on this rationale have not been uniformly successful.

A second proposed causative mechanism of the altered glenohumeral mechanics is acquired glenohumeral internal rotation deficit (GIRD). This deficit is created by progressive contracture of the posterior glenohumeral capsule and decreased static and dynamic flexibility of the posterior shoulder muscles. This tight capsule creates a superior shift in the glenohumeral contact point—posterosuperiorly in cocking and anterosuperiorly in followthrough. This initiates a “pathologic cascade” that climaxes in the cocking phase of throwing. As the shoulder abducts and excessively externally rotates around this new contact point, shear forces at the biceps anchor and posterosuperior labrum increase through a peel back action of the biceps on the labrum, producing a posterior SLAP lesion; the anterior capsule becomes lax due to the altered contact point, and may secondarily stretch due to the hyper external rotation; and there are increased shear and torsional forces on the rotator cuff as the other joint constraints fail, creating a “hypertwist” load mechanism of injury rather than a straight tensile load mechanism. All of these consequences are worsened by scapular dyskinesis, producing a protracted scapula that creates an antetilted glenoid, increases anterior capsular tensile loads, and magnifies the peel back action.

About half of these patients will also demonstrate hip and trunk weakness on examination.

Partial thickness rotator cuff tears in throwers have also been shown to be “lesion specific”. The anterior PRCT were associated with anterior SLAP lesions, and posterior PRCT were associated with posterior SLAP lesions. This adds credence to the idea that the hypertwist of the rotator cuff in the areas of superior subluxation due to labral injury, either anterior or posterior, may contribute to tearing of the cuff. In this situation, the mechanically based tensile/shearing/torsional load may create enough internal strain to initiate apoptotic changes in the cell, adding degenerative damage to mechanical damage.

Clinical Implications
Throwing athletes who develop signs and symptoms of PRCT, or who are found to have these lesions in surgery should have a comprehensive clinical examination to evaluate the associated alterations. This should include a screening exam for hip and trunk strength and flexibility, evaluation of scapular position and dynamic motion, a scapula stabilized determination of glenohumeral internal rotation, and testing for superior labral tears. Optimal treatment of the rotator cuff injury is based on the size of the lesion and its thickness. Lesions that involve more than half of the thickness should probably be taken done and repaired like full thickness tears. Surgical treatment should also be directed at the associated pathology, especially the labral injuries. Post operative rehabilitation should include all areas of the kinetic chain, including the legs, trunk scapula, and shoulder. Rehabilitation of the trunk and scapula can begin while the arm is in the sling.

Full article and references also available online at www.isakos.com

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HAMSTRING INJURIES

INTRODUCTION
Muscular strains of the lower limb are among the most common injuries in sport. They make up one third of all referrals to sports physicians and their frequency and disabling effect is well-documented. Hamstring injuries in particular are the most common type of muscular strain to effect the lower limb in the elite athlete. They are associated with sports which involve rapid acceleration or deceleration, jumping, cutting, pivoting, turning or kicking. They are particularly associated with Australian Rules Football (AFL) rugby and soccer. They result in significant time off sport, can be the source of considerable pain and can result in impaired performance on return to activity.

MECHANISM OF INJURY
Hamstring tears do not result from direct trauma but rather are stretch induced injuries caused by a sudden forced lengthening occurring during a powerful contraction. The most common mechanism of injury is ballistic hip flexion during eccentric knee extension.

FACTORS PREDISPOSING TO INJURY:
Several factors have been implicated in the aetiology. These are poorly supported by scientific evidence.

1. Previous Injury
Orchard in a prospective study reviewed 2255 games of AFL. Previous injury was shown to be the most significant risk factor.

2. Fatigue
In animal studies, fatigued muscle demonstrates increased stiffness and has been shown to predispose to injury.

3. Reduced Flexibility/Stiffness
Stiffness predisposes to hamstring injury. Witvrouw et al found a strong correlation between preseason hamstring tightness and subsequent hamstring injury in soccer players. Laboratory studies have also shown the importance of stiffness and the need for stretch and warm up.

4. Weakness
Many studies have shown that poor strength and particularly preseason weakness predisposes to hamstring injury.

RECURRENTNESS
This common injury has a high incidence of recurrence with most re-ruptures occurring in the first week on return to activity. The healing process has been shown to be more prolonged than previously thought and a significant risk of recurrence remains for many weeks after return to play.

ANATOMICAL SITE
The hamstrings are made up by Biceps femoris, semimembranosus and semitendinosus. Their primary function is hip extension together with knee flexion and rotation. The most common site of injury is in the long head of Biceps at the myotendinous junction. At the microscopic level the injury is at the Z line between adjacent thin filaments.

PATHOPHYSIOLOGY
Despite extensive investigation the aetiology and pathophysiology of these injuries remains unclear. Initially there is an acute inflammatory response followed by a healing phase. Type 3 collagen predominates in the resultant scar tissue which is stiffer and weaker than normal muscle.

CLINICAL PRESENTATION
Patients typically present with posterior thigh pain, localised tenderness and loss of function. On examination there may be swelling, tenderness, bruising and a reduced straight leg raise. The clinical features can be more insidious and the differential diagnosis includes: minor contusions, posterior compartment syndrome or referred pain from the lumbar spine, gluteal region, piriformis or sciatic nerve.

CLASSIFICATION
The most widely used grading system of injury is that devised by O’Donoghue.

- Grade 1 or 1st Degree. There is no appreciable tissue disruption.
- Grade 2 or 2nd degree. Actual tissue damage occurs that reduces the strength of the musculotendinous unit. There is some residual function.
Grade 3 or 3rd degree
Complete disruption of the musculotendinous unit with total loss of function.

IMAGING
Ultrasound and CT are useful modalities but the gold standard for assessing these injuries is MRI (Figure 2). This is particularly useful in minor hamstring injuries or where the diagnosis is equivocal. Gibbs et al\textsuperscript{14} showed a strong correlation between the length of the lesion on MRI and recovery time.

TREATMENT

NON OPERATIVE
The management of these common injuries is essentially activity modification together with a tailored physiotherapy programme. Other non-operative measures include:

1. Non-steroidal Anti-inflammatories
Non-steroidal anti-inflammatories are frequently used following muscle strain injury. Their role has been questioned in that they may slow the healing response\textsuperscript{15}.

2. Corticosteroid injection
The use of steroids is also controversial for fear of poor healing, rupture or infection.

Levine at al\textsuperscript{16} injected 431 NFL players and reported no complications with only 9 players (16%) missing a game as a result of their injury.

3. Ultrasound
Although frequently used, the role of ultrasound in these injuries is poorly supported by scientific evidence. Rantanmen et al\textsuperscript{18} looked specifically at the role of ultrasound and myoregeneration in simulated muscle strain injury in vivo and found no evidence of enhanced muscle regeneration.

SURGICAL MANAGEMENT
Complete avulsion of the proximal hamstrings is a rare injury that is associated with significant morbidity. The diagnosis is difficult and often delayed. Studies have shown that they do not do well with non-operative treatment\textsuperscript{18, 20, 22}.

REHABILITATION
Many protocols have been established but most consist of 5 phases with regular clinical assessment to determine if treatment can be accelerated or needs to be slowed down.

EXAMPLE OF REHAB PROTOCOL FOR HAMSTRING INJURY
Phase 1
RICE with assessment of severity of injury. Progression to the next phase is guided by initial response to treatment.

Phase 2
Early motion with protective exercise and passive stretching, moving to resistance work.

Phase 3
Isokinetic exercises are then introduced. For ongoing conditioning, the use of an exercise bike and treadmill are encouraged. Flexibility is assessed at regular intervals.

Phase 4
Once the athlete can perform slow isokinetic exercises comfortably, a running programme is introduced. The intensity of training is gradually increased and the athlete begins agility work and sprinting.

Phase 5
The final phase of the rehabilitation is return to sport. There is no consensus as to when an athlete can return to sport after sustaining a hamstring injury. Every effort is made to reproduce the athlete’s sport and if this can be done pain free with normal strength and no focal tenderness, then return to full activity is commenced.

CONCLUSION
The management of hamstring injuries remains difficult and frustrating. Prevention is the ultimate goal however there is no consensus or gold standard as to how this is best achieved. Several studies have shown that pre-participation warm up, repetitive stretching, adequate conditioning to reduce fatigue and proper technique can reduce the risk of injury. The risk of re-rupture is high at 30% for AFL players and the risk remains for many weeks following the index injury. New methods of assessment have been introduced to look specifically at preseason weakness and this has been useful to identify those at risk of a further injury.

As a rule return to activity is guided by the functionality of the athlete. However the clinician needs to convey caution following hamstring injury as the risk of a further injury remains high even in the absence of any residual symptoms.

Full article and references also available online at www.isakos.com
INTRODUCTION

Unicondylar tibio-femoral replacements should be seen as real resurfacings of the knee joint. An unicondylar replacement cannot change the original natural alignment or ligament balance of the knee. It should, in theory, also restore the normal kinematics of the knee. (1)

In the normal knee, movement between the tibia and the femur is controlled by the ligaments and the menisci. The individual morphology of the joint surfaces is adapted to the movement that the ligaments demand. Replacing either the medial or the lateral tibio-femoral articulation, but keeping all the ligaments intact, would demand that both the new femoral and tibial components be exact copies of the original articular surfaces and be placed in the exact same position as the original joint surfaces. With our present technology, this is of course not possible. At the moment there are two solutions to this dilemma.

The first solution is to have both a fixed femoral and fixed tibial component with low conformity between the two articular surfaces. This allows relatively unconstrained movement between the femoral and tibial articulations allowing the ligaments to control the movement. The downside to this is that the non-conformity between the femoral and tibial components results in high stresses in the tibial component which can lead to excessive polyethylene wear and component loosening especially if the polyethylene is thin.

The second solution is to have a free mobile bearing with absolute congruency between the metal femoral and metal tibial articulating surfaces. The mobile bearing can be steered in any direction by the ligaments while the maximum congruency is maintained through the full range of movement. The down side of this design is the possibility of a dislocation of the mobile articulating surface. The long term results of fixed and mobile bearing UKR's seem to be similar and does not favor a particular design. (2) It seems that good results in the mobile bearing UKR is more surgeon dependant than that in fixed bearing UKR. (3)

INDICATIONS

It has been suggested that an UKR should be the first procedure for osteoarthritis in a young patient and the last procedure in the old patient. The argument put forward is that in a young patient an UKR is simpler, recovers quicker and there is a similar time to failure as the alternative osteotomy. It is also claimed that it is easier to convert a failed UKR to a TKR than it is to do a TKR after a failed osteotomy.

I would like to caution against these arguments as survival rates in UKR's have on the whole only been established in older patients. (4) In comparison survival rates after osteotomies have been done in a younger age group. (5)

There is a possibility that the survival rate for UKR's might be lower in young active patients than is anticipated.

It was further found, in our own studies, that the tibial insert, after revisions of UKR's, were significantly thicker then the tibial inserts used in TKR's after previous osteotomies. Others found that there was a greater use of tibial stems, augments and bone grafts after revisions of UKR's than with TKR's after failed osteotomies. (6,7,8)

As the natural alignment can only be restored and not changed with a UKR, this procedure would be contra-indicated in patients with a natural alignment of more than 5 varus or more than 5 valgus. Greater malalignment would result in excessive loads on the replaced compartment and probably early failure. (9)

Loads seen by the prosthesis is in direct proportion to the patient's mass. Considering that load over the normal knee is approximately four times body weight and that in neutral alignment, 75% of this load is carried in the medial compartment, (10), a high BMI could lead to early failure.

In general, the following guidelines should be considered when planning an UKR. (11)

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<tr>
<td>Patellofemoral</td>
<td>Complete loss of articular cartilage would be a contra-indication.</td>
</tr>
<tr>
<td>Inflammatory arthritis, rheumatoid arthritis, gout and other general arthritic conditions would be a contra-indication.</td>
<td></td>
</tr>
</tbody>
</table>
PRE-OPERATIVE PLANNING

Proper X-rays is mandatory for patient selection and planning of an UKR. The following is essential in deciding whether the patient is a candidate and also in planning the operation:

<table>
<thead>
<tr>
<th>X-ray Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-P views</td>
<td>Standing in full extension. Standing in 40° of flexion.</td>
</tr>
<tr>
<td>Lateral views</td>
<td>True lateral, preferably standing view.</td>
</tr>
<tr>
<td>Patello-femoral view</td>
<td>Preferably a 30° standing view.</td>
</tr>
<tr>
<td></td>
<td>Necessary for assessment of damage to the involved and uninvolved compartments.</td>
</tr>
<tr>
<td></td>
<td>This is to determine, in the sagittal plane, the area of degeneration on the tibia. Posterior degeneration would indicate ACL insufficiency which is a contra-indication to an UKR.</td>
</tr>
<tr>
<td></td>
<td>For assessing degeneration in the p-f joint.</td>
</tr>
<tr>
<td></td>
<td>This allows assessment of natural alignment, the condition of the opposite compartment and the stability of the collateral ligaments.</td>
</tr>
</tbody>
</table>

SURGICAL PROCEDURE

The principle is to restore natural alignment of the patient; the original ligament tension and the joint line.

The components should be placed in such a way that the tibial and femoral components are in maximum congruency in both flexion and extension. This means that the femoral and tibial components should be parallel to one another in both flexion and extension.

The components should be placed in the center of the compartment as an offset placement will result in weak fixation and early loosening.

The components should snugly fit the bone. An onlay tibial component should lie on the cortex with no overlay; with an inlay component there should be no damage to the surrounding cortical rim.

The femoral component should fit tightly to the posterior femur; anteriorly it should be flush with the articular cartilage to prevent patellar impingement.

Bone cuts, both in the sagittal and coronal planes of the femur and the tibia, should be such that the joint line and ligament stability are restored in both flexion and extension. On the average, the normal tibial plateau is within 3∞ of varus to the tibial mechanical axis in the coronal view. In the sagittal plane, there is an average of 9∞ posterior slope to the tibial plateau. There is a wide individual variation, in the coronal plane from 0 – 5∞ varus and in the sagittal plane from 5 – 13∞ posterior slope. In order to restore natural alignment and ligament tension, these variations should be taken into consideration. An increase in the posterior tibial slope will increase the load on the ACL and should be considered if the ACL is intact, but attenuated. If the joint is tight in flexion and loose in extension, the tibial slope should be increased. If the knee is loose in flexion and tight in extension, the femoral component is either too proud or the posterior tibial slope is excessive. (14) Where doubt exist about ligament tension, slightly lax ligaments would be preferable to over tight ligaments.

With a MIS approach, an arthroscopy of the healthy compartment is recommended at the time of surgery.(15). Planning should be such that the UKR can be abandoned in favor of a TKR should the damage in the healthy compartment be more than superficial fibrillation.

RESULTS

In our experience, bleeding, post-operative morbidity and infection after UKR’s is approximately 65 % less than after a TKR.

The long term failure rate for UKR’s is about 1.8 times higher than that of TKR’s. Over the past twenty years, the cumulative revision rate (C.R.R.) for TKR’s have slowly decreased, but for UKR’s the C.R.R. is unchanged.(15, 17)

The most common cause of failure was loosening of the components followed by progressive degeneration in the unreplaced components and then by polyethylene wear. (18, 19)

CONCLUSION

UKR’s are technically a demanding procedure with a low morbidity and excellent functional results in good cases.

Both short and long term failure rates are however substantially higher than that of TKR’s. The most common cause of failure is component loosening which is multi factorial and caused amongst others by malpositioning of the components, overload of the replaced compartment as a result of persistent malalignment, over activity and a high BMI. The second most common cause of failure is progressive degeneration in the opposite compartment. It is probably caused by over stuffing of the replaced compartment or using an UKR in a knee where the opposite compartment is already compromised.

The percentage of patients suitable for UKR in a knee practice, is approximately 10%–20 %. We believe that an osteotomy is still the procedure of choice in the younger and especially physically active patient. In patients with arthroscopic degeneration in the opposite compartment, a TKR is the procedure of choice except in the old frail patient where post operative morbidity might be a problem. By using these guidelines as well as the previous mentioned, we believe that the long term survival rates of a UKR can equal that of a TKR while at the same time giving the patient a knee with better function and near normal kinematics.

Full article and references also available online at www.isakos.com
19TH & 20TH CADAVER WORKSHOPS

Severance arthroscopy fresh cadaver workshops were held on February 18, 2005 (knee) & March 4, 2005 (shoulder).

The workshops have been held at Yonsei University College of Medicine in Korea for 20 times since July 7th, 2001 and got ISAKOS approval since 11th workshop on November 1st, 2003. These are the only fresh cadaver workshops in Korea with ISAKOS approval. Professor Sung-Jae Kim (Korea), course chairman of the workshop and representative of Severance arthroscopy unit, has been working as arthroscopy committee member of ISAKOS and editorial board member of Arthroscopy journal.

During the workshop, participants observed demonstrations by Professor Sung-Jae Kim (Korea) and then went into training by themselves under the guidance of professor and table instructors. During this participants were able to train themselves for various operative techniques and had opportunities to discuss with the instructors. After this exercise, they dissected the cadavers to get more information about surgical anatomy of the joint. In total there were 7 persons participating in the knee workshop and 16 persons participating in the shoulder workshop.

It was useful time for the participants to attend the workshop. Professor Sung-Jae Kim (Korea) made a plan to include ankle and elbow arthroscopy in the future workshops and to advance knee cadaver course technically higher due to need of already attendance who was accomplished basic knee course.

More and more orthopaedic surgeon want to take part in the cadaver workshop. Professor Sung-Jae Kim (Korea) is considering expanding the scale of workshop.

TISSUE ENGINEERING SYMPOSIUM
MARCH 31 – APRIL 1, 2005
WINSTON-SALEM, NORTH CAROLINA, USA

Medical applications of technological advances always make an impact in society. These breakthroughs often offer a solution to a previously unsolved problem which can be related to diagnosis of certain pathologies and their treatment. In a recent Tissue Engineering Symposium at Wake Forest University Baptist Medical Center, focus was centered on the realization of the possibility of using laboratory-grown organs and bio-engineered muscle, nerves, cartilage and bone for treatment of medical conditions. The meeting organized by Dr. Gary Pochleng, MD (USA) was sponsored by Wake Forest Baptist and the International Society of Arthroscopy, Knee Surgery and Orthopaedic Sports Medicine (ISAKOS) as a prelude to its annual conference. Bio and tissue engineering experts from Wake Forest Baptist, Children’s Hospital of Pittsburgh, Carnegie Mellon University, the University of Texas at Austin, and experts from Italy and Japan, presented their latest work.

Tissue engineering or regenerative medicine refers to the science of repairing, replacing or regenerating organs or tissue for medical use. Currently, the potential application in the different fields of medicine is unlimited.

Anthony Atala, MD, director of the Wake Forest Institute of Regenerative Medicine and his team currently work on the possibility of using the patient’s cells to grow more than 20 different tissue types. They hope to achieve this by harvesting cells from humans and integrating them on a bio-degradable scaffold which when combined with certain growth factors enable cells to multiply. Moreover, work on identifying new sources of stem cells have begun which would eventually enable them to direct these unspecialized cells to produce cells that could be used to treat Alzheimer’s, liver, heart and vascular diseases.
In the field of Orthopaedics, on the other hand, the same concept of using growth factors to regenerate bone, enhance healing of ligaments, and produce tissue-engineered cartilage to address sports injuries and degenerative pathologies have also been reported. Mitsuo Ochi, MD from Hiroshima, Japan and Alberto Gobbi, MD from Milan, Italy both reported their experience on the use of tissue engineered cartilage products in treating orthopaedic problems, specifically those related to cartilage damage.

Dr. Gobbi (Italy) uses the Hyalograft system in treating osteochondral lesions in both the knee and ankle joints. Of particular interest in his technique is the possibility of doing some of these procedures in an arthroscopic manner, making his procedure less invasive than the first generation ACI technique.

In this second generation technique, cells were harvested from the non-weight bearing portion of the knee for cultivation. These same cells were then seeded in a 3-dimensional scaffold where they remain viable and continue to multiply until they're ready for implantation. Favourable results presented included clinical, arthroscopic and histologic data indicating the viability of this procedure in addressing cartilage damage with the production of hyaline-like tissue that is mechanically and functionally stable.

In conclusion, Gary Poehling, MD (USA), Professor and Chairman of Orthopaedics at Wake Forest Baptist emphasized the positive effect tissue engineering technology would have in the future when he said that “The potential in Orthopaedics is not only to manage devastating congenital or traumatic problems but also to prevent or slow degenerative processes in order to maintain the activity and function of our aging population.”

Respectfully submitted by
Alberto Gobbi, MD (Italy)
Ramces Francisco, MD (Italy)
KIWI 2005
Knee International Workshop of ISAKOS Argentina

KIWI 05, Knee International Workshop of ISAKOS in Argentina, was one of the teaching activities scheduled by Global Connection for 2005, which had major repercussion in Latin America.

Its scheduling and dissemination started 18 months in advance and ISAKOS, SLARD, the local Arthroscopy, Sports and Knee Surgery Societies, as well as Austral University contributed towards the organization.

In a unique university setting, 227 participants registered, 45% of them foreigners from Chile, Uruguay, Peru, Colombia, Paraguay, Cuba, Spain, Italy, Germany, and USA who contributed a special international flavor. Also to be noted is that the cadaver lab was sold out very early.

The subject chosen, Degenerative Knee, was a current and interesting topic for the Regional Specialists and KIWI 05 worked out exactly as planned.

Fourteen foreign guests from Europe, USA and Latin America were the Faculty of the event and contributed their international expertise on the subject, while selected Argentine specialists took part in the practical segment.

Fifty-two theoretical topics were presented, 12 live surgeries were projected, 3 on patients directly from the operating room, and 9 from the cadaver lab. Eight discussion round tables were held with the active participation of the audience. All the activities had simultaneous translation into English. The workshop had 42 attendants, practicing at least 6 surgeries per table, on fresh cadavers and maquettes, under the supervision of highly qualified instructors.

This type of activity meets the goals of Global Connection as regards spreading education around the globe, and we should highlight the strong support of the companies that had a decisive participation in the event and allow these educational plans to be fulfilled.

Alberto Pienovi, MD (Argentina)
Editor’s Note

Please let me recommend that you peruse the scientific articles that are offered in this issue. Check the relevant study presented by Philippe Hardy (France) on shoulder dislocations, the interesting review of hamstring injuries by Dr. Peter Myers (Australia), the outline and arguments for uni condylar Knee Replacement by Dr. Pieter Erasmus (South Africa); and the article on partial rotator cuff repairs by Dr. Ben Kibler (USA).

I would personally like to thank Dr. Savio Woo (USA) for submitting the articles detailing the response of the Pittsburgh Medical Community to the tragedy of the tsunami. Truly, this reverberates in the global community of mankind at large and deeply affects the global family of ISAKOS.

ISAKOS remains a vibrant, healthy, and rapidly growing organization. If you have an interest in Knee Surgery, Arthroscopic Related Surgeries, or Orthopaedic Sports Medicine ISAKOS is THE International Organization to introduce YOU to like-minded clinicians and researchers on the cutting edge progressing to the future of our field. We are advancing to a period of geometric growth and exponential growth lies ahead. The bar has been raised. The committees, Board of Directors of ISAKOS and newly sworn in President, John Bergfeld (USA), and membership are doing much more than enjoying the glow of the recent successful Biennial Congress. Support for research, projects, workshops and meetings is growing. Mark your calendars! Stay tuned for the exciting plans for the next Biennial Congress in Florence, Italy!

President’s Message

Over the next 2 years, I will strive to strengthen our relationship with industry through our educational workshops, didactic courses and our Global Leadership Conference, which will convene in the fall of 2006. Here, ISAKOS Leadership will have face to face discussions with our industry decision makers with the mission to meet the educational goals of both ISAKOS and industry in a mutually productive manner.

I will strive to strengthen our relationship with and establish ISAKOS as an international resource to our regional societies, AANA, AOSSM, APOSSM, ESSKA and SLARD, especially in support of educational activities as well as increasing their presence at our biennial meeting in Firenze (Florence).

We will strive to give a voice to those people who are working in non-aligned countries that do not have a strong regional representation, ie South Africa, Middle East and India.

Our ISAKOS office, under the direction of Michele Johnson, is well organized, efficient and anxious to serve our membership.

I anticipate that our biennial meeting in Firenze (Florence) will be even better and more successful than our previous meetings, assuring our individual members of value added information to their individual practices.

The Executive Committee and Board of Directors are well balanced geographically. Leaders of regional societies are well represented. Along with our Committee Chairs and Co-Chairs, I can assure you we will work hard to carry out our mission.

An organization is only as strong as its members. The leadership is open to suggestions at any time. I want our members to participate in ISAKOS in whatever way they feel ISAKOS serves them or they can serve ISAKOS.

international Societies & Presidents on the isakos website

ISAKOS maintains an extensive list of all international societies and presidents on the ISAKOS website. Please visit www.isakos.com and click on International Societies to view your listed information. In order to update your societies information please contact the ISAKOS office at isakos@isakos.com.
UPCOMING ISAKOS APPROVED COURSES

**ACUTE KNEE COURSE**
The Knee Foundation’s Conference Centre
Droitwich, Worcestershire, UK
June 25, 2005 and November 26, 2005
For Further Information, Please Contact:
Ellen Beales
Tel: +44 (0) 1905 776676
Fax: +44 (0) 1905 793807
www.kneefoundation.com

**ARTHROSCOPIC KNEE SURGERY WORKSHOP**
Droitwich, Worcestershire, UK
June 29–30, 2005
September 28–29, 2005
October 26–27, 2005
November 30–December 1, 2005
For Further Information, Please Contact:
Ellen Beales
Tel: +44 (0) 1905 776676
Fax: +44 (0) 1905 793807
www.kneefoundation.com

**ACL PRACTICAL WORKSHOP**
The Knee Foundation’s Conference Centre
Droitwich, Worcestershire, UK
July 1, 2005
September 30, 2005
October 28, 2005
December 2, 2005
For Further Information, Please Contact:
Ellen Beales
Tel: +44 (0) 1905 776676
Fax: +44 (0) 1905 793807
www.kneefoundation.com

**21ST CADAVER KNEE ARTHROSCOPY WORKSHOP**
Yonsei University Hospital
Seoul, Korea
August 19, 2005
For Further Information, Please Contact:
Sung-Jae Kim
Tel: +82 2 361 6248
Fax: +82 2 363 6248
Email: sungjaekim@yumc.yonsei.ac.kr
www.severanscopy.co.kr

**IV BASIC ANKLE ARTHROSCOPY COURSE**
Sheraton Hotel
Antalya, TURKEY
September 30–October 1, 2005
For Further Information, Please Contact:
Mustafa Urpuden
Tel: +90 242 2274343
Fax: +90 242 2274329
Email: urpuden@akdeniz.edu.tr
Web: www.artroskopr.org

**3RD ARTHROSCOPIC SHOULDER TECHNIQUES INTERNATIONAL COURSE**
Hotel Melia
Barcelona, Spain
October 20–22, 2005
For Further Information, Please Contact:
Kate O’Donnell, Clinical Education, Smith & Nephew
Tel: (978) 749-1364
Fax: (978) 749-1199
Email: Kate.o’donnell@smith-nephew.com

**SHOULDER SURGERY CONTROVERSIES 2005 AND CADAVER LABORATORY**
The Sutton Place Hotel
Newport Beach, California USA
October 20–22, 2005
For Further Information, Please Contact:
Wesley Nottage, MD, Course Director
Tel: (949) 581-7801
Fax: (949) 581-8410
Email: Bigdog492653@yahoo.com
Web: www.shouldersurgerycontroversies.com

**22ND CADAVER SHOULDER ARTHROSCOPY WORKSHOP**
Yonsei University Hospital
Seoul, Korea
August 19, 2005
For Further Information, Please Contact:
Sung-Jae Kim
Tel: +82 2 361 6248
Fax: +82 2 363 6248
Email: sungjaekim@yumc.yonsei.ac.kr
www.severanscopy.co.kr

**23RD CADAVER KNEE ARTHROSCOPY WORKSHOP**
Yonsei University Hospital
Seoul, Korea
December 2, 2005
For Further Information, Please Contact:
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Fax: +82 2 363 6248
Email: sungjaekim@yumc.yonsei.ac.kr
www.severanscopy.co.kr
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- FAST-FIX™ Meniscal Repair System

Shoulder Arthroscopy
- CLEAR-TRAC™ Complete Cannula System
- BIORAPTOR™ 2.9 Suture Anchor
- ELITE™ PASS Premium Arthroscopic Suture Shuttle