



# International Society of Biomechanics Newsletter

ISSUE Number 97  
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### AFFILIATE SOCIETIES OF ISB:

American Society of Biomechanics; Australian and New Zealand Society of Biomechanics; Brazilian Society of Biomechanics; British Association of Sport and Exercise Sciences; Bulgarian Society of Biomechanics; Canadian Society of Biomechanics/Société canadienne de biomécanique; Chinese Society of Sports Biomechanics; Comisia de Biomecanica Inginerie si Informatica (Romania); Czech Society of Biomechanics; International Society of Biomechanics in Sports; Japanese Society of Biomechanics; Korean Society of Sport Biomechanics; Polish Society of Biomechanics; Russian Society of Biomechanics; Société de biomécanique (France); Taiwanese Society of Biomechanics.

## Note from the President

Here in the early start of 2006, I'd like to thank all of you who contributed to the congress we had in Cleveland---where 1,150 people from all over the world gathered and shared research findings and new ideas with each other. From a personal standpoint, what struck me was how individuals from various institutions in Cleveland collectively came together to take on the challenge of hosting a program spanning 10 days (i.e., the combination of the satellite meetings and the main congress). In wishing ISB members all the best for 2006, I'd like to encourage everyone to take on new challenges and "push the envelope"---since that is the way progress is made.

During the last week of November 2005, I had the privilege of visiting the Tanzanian Training Centre for Orthopaedic Technologists (TATCOT) in Moshi, Tanzania. This centre was founded in 1981 with support from the governments of Tanzania and the Federal Republic of Germany. The initial objective of establishing the centre was to train and qualify technical orthopaedic professionals within East Africa (i.e., Kenya, Uganda, and Tanzania) with adequate knowledge and skills to fit disabled people with different types of orthoses and prostheses. Since the 1980s, there has been substantial growth in student interest, and TATCOT now represents a supra-regional training centre that offers courses recognized by both the International Society for Prosthetics and Orthotics and the World Health Organization. The widespread interest in TATCOT was reflected in the number of students who attended a lecture I gave on biomechanics: countries represented were Nigeria (1 student), Kenya (2 students), Tanzania (4), Togo (3), South Africa (3),

Ethiopia (1), Cambodia (1), and Namibia (2).

Two people I met with at TATCOT were Mr. Shangali and Mr. Mtalo. The essence of our discussions centred on making the biomechanics component of their curriculum more meaningful to their students. Currently, most of their students learn concepts from the few textbooks they have in one of their classrooms. Concepts related to ground reaction forces, limb kinematics, and gait are often difficult to learn, since they have no musculoskeletal assessment (or gait) laboratory.

Upon returning to the USA, I reported these issues to the Executive Council of the International Society of Biomechanics (ISB), and I'm pleased to say that a number of ISB members have offered to assist TATCOT in setting up an "ISB Movement Analysis Laboratory". First and foremost, I'd like to thank Vicon for donating a six-camera system for this purpose. What impressed me most about Vicon was the fact that it took them less than 2 days to respond to this (somewhat unreasonable!) request! In addition, Kit Vaughan (former ISB President, who is based at the University of Cape Town) has offered to train individuals from TATCOT in the operation of the Vicon system. Others on the ISB Executive Council have offered to visit TATCOT and/or send educational materials related to upper- and lower-limb biomechanics to the centre.

What I would like to do next is open this opportunity up to the ISB membership at large. If you are interested in any of the following, please contact me:

- i. Installing forceplates

- ii. Donating a high-quality digital camera
- iii. Donating fully functional devices that could be used in a gait lab (e.g., treadmill, EMG system, or high-speed PC)
- iv. Donating books or complete sets of biomechanics journals, or
- v. Lecturing at TATCOT on topics such as upper-limb prosthetics, tissue mechanics, or spine orthotics.

At this time of the year, I'd like everyone to reflect on how fortunate we all are to work in the exciting field of biomechanics and to consider ways we can assist others who are hoping to become part of the ISB family. As I mentioned at the close of the ISB Congress in Cleveland, there was only one attendee from Africa at the meeting ? I have no doubt that if ISB embraces the efforts at places like TATCOT, there will be a much better African representation at ISB2007 in Taipei.

In closing, I'd like to thank my colleagues on the ISB council who are "pushing the envelope" on a number of fronts. Jill McNitt-Gray is continuing her efforts on behalf of countries that have an unfavourable economic situation, and is working to get scientists from these countries easier access to both the 2006 World Congress of Biomechanics meeting in Germany as well as the 2007 ISB meeting in Taipei, Mary Rodgers is helping the WCB organizers with the scientific program, Alex Stacoff is putting the final touches on the tutorial selections for ISB2007 (watch the website for more de-

tails), Peter Milburn is coordinating the next round of student grants, Joe Hamill continues to update the website (you can now order biomechanics books through the website) ... basically, you have a pretty busy council, and it is my pleasure working with them! Of course, none of this would be possible without the continued support from our sponsors and from our members.

As we approach 2006, there are many exciting events to look forward to! There is the World Cup in soccer from 9th June to 9th July in Germany, the ISBS Symposium in Salzburg, Austria (July 14-18th), the World Congress of Biomechanics meeting in Munich (July 29th to August 4th), the Canadian Society of Biomechanics meeting at the University of Waterloo (August 16-19th), the ASB meeting at Virginia Tech (Sept 6 to 9th), and a combined GCMAS (Gait and Clinical Movement Analysis Society)/ESMAC (European Society for Movement Analysis in Adults and Children) meeting in Amsterdam (September 28 ?30th). There are obviously other meetings in our field, but these examples reflect the breadth and depth of international activities in biomechanics.

As always, if anyone has any ideas for fostering the field of biomechanics, please do not hesitate to contact me or anyone else on the ISB council.

With best regards,

*Brian Davis, Ph.D.*  
ISB President

# Minutes of the ISB General Assembly Meeting Cleveland, USA, Wednesday August 3<sup>rd</sup> 2005, 12.30 pm

Present: Mary Rodgers (Chair), Julie Steele (Minute Secretary), Graeme Wood, Wendy Gilleard, Kit Vaughan, Leendert Blankervoort, Heidi Schewe, Bart van Gheluwe, Trey Crisco, Krystyna Gieol-Perczak, Karol Miller, Mont Hubbard, Peter Milburn, G-P. Bruggermann, Syn Schmitt, Darren Stefanyshyn, Uwe Kersting, Becky Snow, Sara Wilson, Bab Yugon, Todd Royer, Phil Martin, Frank Buczek, Akira Iiboshi, Margaret Finley, Andrew Karduna, Walter Herzog, Benno Nigg, Maarten Bobbert, Max Kurz, Nick Stergiou, Naira Campell-Kyureghyan, Sicco Bus, Karen Sogaard, Anne Katrine Blangsted, Pernille Kofoed-Nielsen, Dieter Rosenbaum, Jill McNitt-Gray, John Challis, Susan Chinworth, Brian Davis, Sandra Olney, Frans van der Helm, Dirkjan Veeger, Serge van sint Jan, Marco Viceconti, Tom Buchanan, Rik Huiskes, Alan Walmsley, Bridget Munro, Karen Mickle, Li-Shan Choce, Michael Hahn, Thomas Jenkyn, Frances Sheehan.

## **1. Welcome** (Mary Rodgers)

Mary Rodgers welcomed all to the meeting and outlined the agenda.



## **2. Approval of Minutes:** 9th July 2003

### **MOTION:**

Moved: Sandra Olney; Seconded: Kit Vaughan

*“To accept the minutes of the General Assembly meeting held 9th July, 2003 in Dunedin, New Zealand”*

Approved unanimously with no business arising.

## **3. President’s Report** (Mary Rodgers)

Mary outlined the major activities and achievements of the Council during the past two years. These included the conversion of many of the Society’s activities to an efficient electronic format including:

- elections
- membership survey
- communication of the Society’s events, including the newsletter and a new face to the web site.

## ***Constitution and Codes***

Mary summarised the enormous amount of work that ISB Council member Bob Gregor had achieved on updating the ISB Constitution and Codes over the past two years. After defining Honorary membership status, nominations for Honorary members were taken from the floor and voted upon by the council. The three candidates granted Honorary membership status were:

- Paavo Komi
- Bob Norman
- Benno Nigg

Mary described the newly established voting procedure for the ISB Student Representative and reaffirmed Cheryl Metcalf as the new ISB Student Representative on the Council. She also described the structure and organisation of ISB Technical Groups.

Bob Gregor, ISB Officer for Constitution and Codes, gave an overview of the changes made to the documents over the past two years, explaining that the Constitution is now well established and that the most recent version will be posted on the ISB web. He outlined information contained in the Codes, highlighting that the Codes now provide a good description of the roles of ISB Executive Council members. An attachment to the Codes describing detailed procedures for organising and hosting ISB Congresses is also being developed. Although the Codes will be regularly updated, the current version will be listed on the web for access by all ISB members.

## **4. Treasurer's Report**

Graeme Wood presented the Treasurer's report, outlining ISB financial transactions for the past two years. In summary, the income and expenditures (in Australian Dollars where 1 AU\$ = 0.68 to 0.72US\$) were as follows:

### ***Income Statement: 1 Jul 2003 to 30 Jun 2004:***

Revenue	129,451
Expenses	145,531
Profit (Loss)	(16,080)

### ***Income Statement: 1 Jul 2004 to 30 Jun 2005:***

Revenue	205,309
Expenses	172,499
Profit (Loss)	32,810

Graeme reminded members that during the 2003 ISB General Assembly meeting it was agreed to draw down on ISB revenue, which was achieved in Year 1 (2003/04) but resulted in a surplus in the past year. Details of spending were provided where the largest expenditure included the student grants and ISB web site development. Reductions in costs associated with Newsletter production since the introduction of electronic versions of the newsletter were highlighted.

**Auditor's Report:** Graeme Wood then called on Krystyna Gieol-Perczak to give her assessment of the Treasurer's figures. Krystyna Gieol-Perczak stated that both she and Bart van Gheluwe had examined the income and expenditure statements and balance sheets for the years 2003-2004 and 2004-2005, and found the figures to be in order and in agreement with Bank records."

**MOTION:**

Moved: Karol Miller; Seconded: Tom Buchanan

*"...we recommend that the General Assembly accept the Financial Reports prepared by the Treasurer as a true record and correct statement of the Society's finances"*

Approved unanimously.

Graeme Wood then presented the proposed budget for the next two years, recommending that ISB draw down on consolidated revenue for next two years to provide greater benefits for full and student ISB members. This is to be achieved by increasing expenditure, assuming that membership and sponsorship are maintained at current levels. The main proposed expenditure included maintaining the successful student grants program; funding initiatives to support biomechanics in developing countries, further development of ISB web services, better archives, and ongoing costs. It was announced that Brian Davis and Ton van den Bogert will donate 50% of the conference profits to ISB.

**MOTION:**

Moved: Alan Walmsley; Seconded: Wendy Gilleard

*"...that the proposed budget is approved"*

Approved unanimously.

**5. Informatics Report**

Joe Hamill outlined the new ISB web site developments, with the web site now averaging 13,000 hits per month, the most popular pages being the jobs and resume section. He then outlined further improvements to the web site, including member only sections, a listing of biomechanics books and ability to purchase them from the web site. The key aim of the web site developments will be to serve ISB members better.

**6. Affiliated Societies and Economically Developing Countries Report**

Applications for Affiliated Status:

Jill McNitt-Gray presented the case for two applications from biomechanics societies seeking affiliated status, the Brazilian Society of Biomechanics and the International Society of Biomechanics in Sports. A brief history and the aims of the two societies were presented.

**MOTION:**

Moved: Kit Vaughan; Seconded: Sandra Olney

*“...that the Brazilian Society of Biomechanics be accepted as an Affiliated Society of the International Society of Biomechanics”*”

Approved unanimously.

**MOTION:**

Moved: Alan Walmsley; Seconded: Frances Sheehan

*“...that the International Society of Biomechanics in Sports be accepted as an Affiliated Society of the International Society of Biomechanics”*”

Approved (1 abstention).

***Committee for International Collaboration:***

Jill McNitt-Gray outlined the goal of the newly established committee: “to foster biomechanics related activities in Economically Developing Countries (EDC)”. She explained the EDC forum that was hosted on Sunday 31 July 2005 and the need to improve communication between EDC communities and the international biomechanics world, particularly in terms of establishing relationships amongst biomechanics and EDC countries. The following people agreed to assist the committee:

Romania	–	Frans van der Helm
Czech Republic	–	Frans van der Helm
China	–	Sandra Olney
Africa	–	Brian Davis
Slovakia	–	Dieter Rosenbaum

Mary Rodgers thanked Jill for the extensive work she had achieved in her portfolio.

**7. Elections**

Mary Rodgers outlined the election process for the Executive Council in which 343 ballots were received. She thanked the current Council members for their support and activity over the past two years. Mary also thanked Sandra as outgoing Past-President and the members whose terms had ended. The election results included:

*President Elect:* Walter Herzog

*Council:*

Maarten Bobbert  
Jill McNitt-Gray  
Alex Stacoff  
Toshi Moritani  
Joe Hamill  
Ewald Hennig  
Peter Milburn

Karen Sjøgaard  
John Challis  
Frans van der Helm  
Cheryl Metcalf (Student Representative)

The New Executive also includes:

*President:* Brian Davis  
*Past-President:* Mary Rodgers  
*Treasurer:* Graeme Wood  
*Secretary-General:* Julie Steele  
ISBS 2007 representative.

Certificates of appreciation were then presented to those members who were leaving the Council: Sandra Olney (Past President), Mark Grabiner, Bob Gregor, Senshi Fukashiro, and Motoshi Kaya. Mary thanked all the Council members for the work they had done.

Mary Rodgers then passed the gavel to the new President, Brian Davis, who expressed his honour to serve the Society. Brian outlined his desire to pursue the initiatives for EDC, including Africa. He encouraged members to consider ways to foster collaboration and to grow every area of the Society.

Meeting closed 12.45 pm

*Report respectfully submitted  
by Julie R Steele, ISB Secretary General*



# Report on the XXth ISB conference held in Cleveland from July 31<sup>st</sup> to August 5<sup>th</sup>, 2005.

**Brian L. Davis, ISB President**



By most accounts, the combined ASB and ISB conference was very well received. Ton van den Bogert and I breathed a collective sigh of relief during the final banquet at the Rock 'n Roll Hall of Fame. Not only had most of our fears (e.g., SARS outbreak, airline strikes, chaos at the registration desk) disappeared into thin air, but also events that had long been planned (e.g., Yankees versus Indians baseball game) had been extremely popular. Added to this was the fact that Martyn Shorten and his "Iliotibial Band" members were bringing the congress to a dramatic conclusion! Who will ever forget Martyn's rendition of "The Graduate Student" --- a modified version of Simon and Garfunkel's "The Boxer"? After the band had finished, many people remarked to Ton and me that it was impossible to end a congress on a higher note (excuse the pun!).

Overall, there were 1,150 attendees at the congress, and 262 of these completed evaluation forms. The results from the survey we distributed are shown below. For space reasons, only a few topics are included, but these cover most of the important issues for congress delegates: Venue facilities, Quality of keynotes, and Value of meeting in terms of improving biomechanics knowledge.

*About two-thirds thought the venue was either excellent or good (Figure 1a). Those who thought otherwise either commented on (i) the fact that Waetjen auditorium was about a 5-minute walk from the lecture rooms in the Main Classroom building and/or (ii) the fact that the student dormitory rooms were poorly prepared prior to the conference. Hopefully other aspects of the meeting compensated for this!*

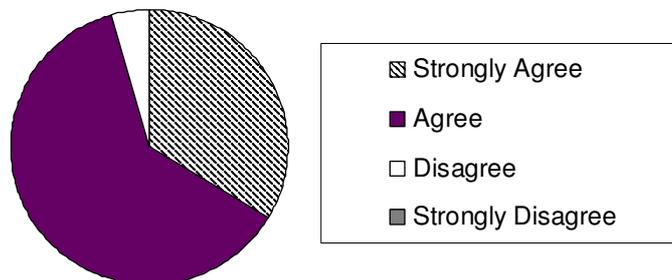


*Certainly, the keynote speakers were highly regarded (Figure 1b) with 94% either indicating "excellent" or good" for these talks.*

**Figure 1. Breakdown of responses for (a) Venue Facilities and (b) Keynote Quality.**

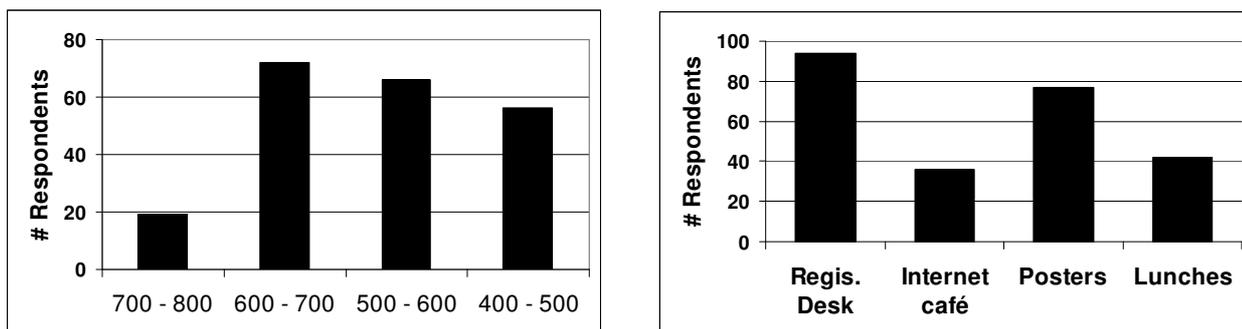
While keynote lectures are important, the rest of the meeting is where many new findings in biomechanics are shared. What was encouraging was the number of people (>95%) who indicated the congress added to their knowledge of biomechanics (Figure 2).

**Congress added to my understanding of biomechanics**



**Figure 2. Over 95% of the survey respondents increased their knowledge of biomechanics.**

One of the issues that Ton van den Bogert paid special attention to, concerned the scientific program. He had a number of decisions to make concerning the number of parallel sessions, number of posters and ASB vs ISB-specific sessions. In the end, about 600 posters were included in the program---a number that happens to coincide with the overall opinion of those people who completed the survey (Figure 3a). Another issue that required some pre-congress planning related to maximizing traffic flow through the exhibit area. For anyone planning a future conference, respondents seemed to think that the registration desk and poster areas should be close to exhibitors (Figure 3b), whereas the internet café and lunch areas were considered less important. (It should be noted that a number of people thought that all of these choices should be close to the exhibitors!)



**Figure 3. Respondents had varying opinions as to (a) “For a conference with 1000 presentations, how many should be posters?”, and (b) Which should be located closest to the exhibit hall, (i) Registration Desk, (ii) Internet Café, (iii) Posters, or (iv) Lunch area?”**

Finally---something should be said of the finances! Despite offering extremely subsidized rates for students (with their registration fees set at the "break even" level), the amount of income from all sources (registrants, exhibitors, sponsors etc) totalled over \$580,000! This is more than the organizing committee expected---largely due to the fact that we had a record number of attendees. The bonus for the ISB is that this unexpected revenue stream resulted in the local committee being able to transfer \$55,000 to the ISB's main account!

In conclusion, on behalf of the local organizing committee, I would like to thank the ISB for choosing Cleveland as the site for the 2005 meeting. We also wish Dr. Shiang and his colleagues in Taiwan all the best in preparing for ISB2007!



Snapshots from the conference.



## Note from the student representative

Hello everyone and happy New Year!

I would like to say a special hello to all those I met at the conference in Cleveland over the summer. I hope you all enjoyed it as much as I did! The talks were excellent and from such a wide variety of applications. Having the chance to talk to students in biomechanical disciplines from all over the world just reinforced to me how important the ISB is in helping us all get together and share our thoughts and ideas, and provides a valuable opportunity to talk to researchers in your own specialism.

I particularly enjoyed the ISB Student Breakfast organised by Motoshi Kaya. It was well attended by over 50 students from the ISB and we were very privileged to have several established researchers from various fields attend (although we did have to bribe them with breakfast for getting up so early!). They were on hand to answer questions about their own work and how we, as students can work towards getting into the type of research we are interested in, both academia and in industry.

We would like to build on the success of the Cleveland conference and would like you to send in your thoughts about future events for the student community. Is there anything you would like to do, or wish you had? If you attended the breakfast, is there anything we could do to improve it? Or do you have any ideas for other events we could introduce at the conferences?

Aside from the conference, is there anything you think the ISB should be doing for its student community?

I look forward to reading your suggestions and I hope you all enjoy the coming year.

*Cheryl Metcalf*  
([cdm03r@ecs.soton.ac.uk](mailto:cdm03r@ecs.soton.ac.uk))



*The student representative (centre) caught in a relaxed moment and good company during the 2005 ISB-conference*

## Julie Steele Business Woman of the year

In the news: ISB Secretary-General named Business Woman of the Year.



On September 23<sup>rd</sup>, 2005, Julie Steele won the coveted title of “NSW Telstra Business Woman of the Year”. It was an unprecedented win for an academic who was up against the elite of the business sector. She was one of only six finalists chosen from several thousand applicants.

Her nomination for the Business Woman of the Year was based on her outstanding contribution to establishing, leading and developing the Biomechanics Research Laboratory, while simultaneously providing leadership in executive positions throughout the University of Wollongong as well as nationally, and internationally.

This award follows earlier recognition of her group’s achievements: in 2004 her laboratory was awarded the Gold Medal for Outstanding Achievements in Applied Research in Sports Medicine by a Research Team, under the New South Wales Sporting Awards Scheme.

Its no wonder that her keynote presentation at ISB2005 on "Developing textile biofeedback technology: From Brassieres to Noisy Knees” was ranked #1 in the survey completed by participants!

Way to go Julie!!!

# VICONPEAK

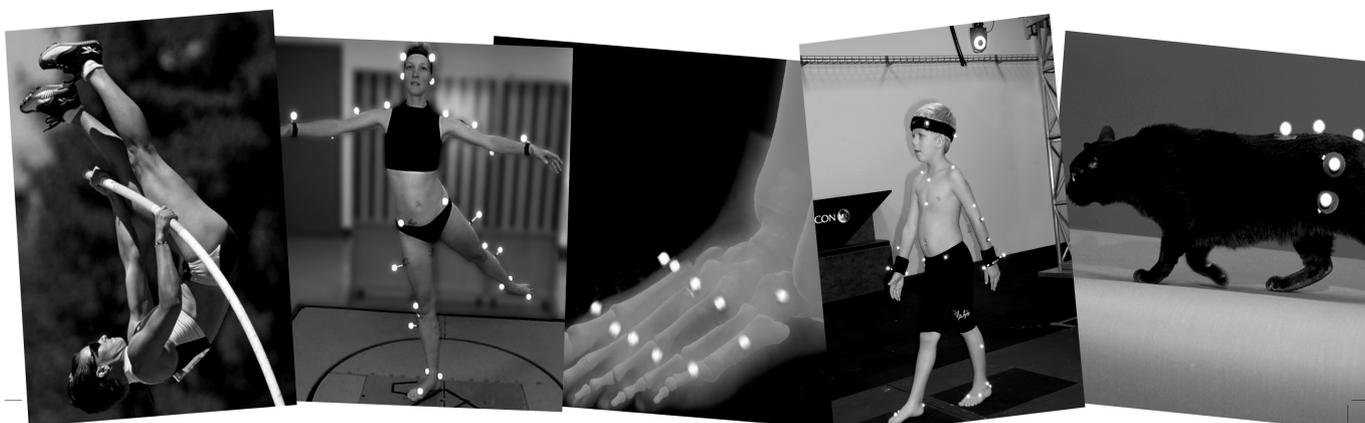
For both video and digital optical movement analysis - Vicon Peak.

California: (949) 472 9140

Colorado: (303) 799 8686

UK: +44 (0) 1865 261800

Web: [www.viconpeak.com](http://www.viconpeak.com)



## Editor's notes

It has been a long time since the last ISB Newsletter. This is partly due to the many other ways available for fast information flow. All ISB-members can now be reached by E-mails and this is the fastest way to convey administrative info from the treasurer. Further, the homepage is very well functioning and a convenient place to collect the upcoming congresses, names of award-winners, and students reports. Actually, the Newsletter itself will now only appear as an electronic version on the homepage and be announced in an E.mail.

Therefore take the time to check the homepage <http://www.isbweb.org/>. For instance, visit the list of young investigators award and see if you can help to fill in the gaps in the list: <http://isbweb.org/o/content/view/85/75/>

We hope you will enjoy the easy access to ISB information as well as the reading of the summary from the general assembly and a call from the student representative for active responses from the students' representative.

In the near future you can look forward to an initiative taken by our new president, a special issue focusing on Biomechanics and Africa.

## New feature has been added to the ISB website [www.isbweb.org](http://www.isbweb.org).

The ISB has established an association with Amazon.com in order for you to be able to purchase biomechanics-related books directly from our website (see new menu item entitled [Books](#)). Book purchases will result in commissions being received by the Society, and thereby benefit all members.

The current book list contains all titles found using the keyword "biomechanics". We plan to add other titles from categories that could be of interest to members, and that are available through Amazon.com, soon.

We hope that this service will be a convenience to our members and website visitors. Please forward any suggestions or comments to me at [gwood@cygnus.uwa.edu.au](mailto:gwood@cygnus.uwa.edu.au).

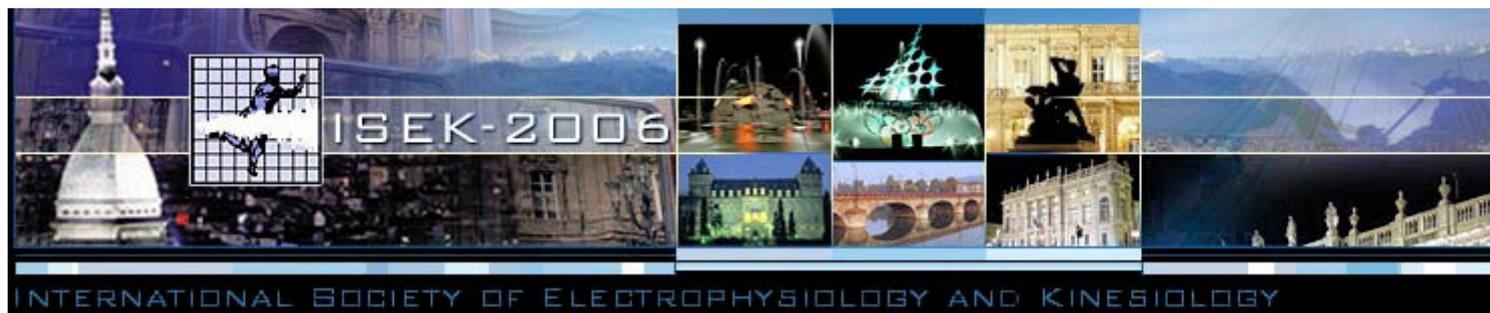
Kind regards,

*Graeme*

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Graeme A. Wood, PhD  
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## Upcoming meetings



### FROM RESEARCH TO PRACTICE XVI CONGRESS OF THE INTERNATIONAL SOCIETY OF ELECTROPHYSIOLOGY AND KINESIOLOGY

Torino, Italy June 28-30 and July 1 2006

#### INVITATION

On behalf of the President and Council of the International Society of Electrophysiology and Kinesiology (ISEK) it is our honour and pleasure to invite you to the XVI Congress of the Society. The Congress will take place at the Lingotto Congress Center in Torino, Italy, on June 29-30 and July 1, 2006. A pre-congress Workshop Session will take place in Torino on June 28 and a post-congress Course on Integrated Movement Analysis in Sport and Exercise will take place at the University Institute for Movement Sciences, (I.U.S.M) in Rome on July 3 and 4, 2006.

ISEK aims to promote and disseminate knowledge in the disciplines of electrophysiology and kinesiology in normal, pathological and experimental conditions. Its members include engineers, physiologists, reha-

bilitation doctors and physical therapists, medical doctors in the field of sport, occupational and space medicine, ergonomists and a wide range of other professionals and scientists.

The 2006 Conference Theme is "From Research to Practice". The Keynote Lectures, the Workshops and the Course on "Integrated movement analysis in sport and exercise" will focus on this topic to outline the maturity of the field and its many applications in clinical practice, neuroscience, ergonomics, sport and space research and many new and diverse fields. We invite you to present, learn and discuss new ideas and applications, advance the frontiers of knowledge and enjoy art, history, science and Italian culture in Torino after the Winter Olympics 2006.

#### **Roberto Merletti**

LISiN, Politecnico di Torino  
and  
COREP  
Congress Secretary General

#### **Alberto Rainoldi**

LISiN, Politecnico di Torino  
and  
COREP  
Congress Scientific Chair

#### **Dario Farina**

SMI, University of Aalborg,  
Denmark  
Congress Scientific Chair

## IMPORTANT DATES

June 28, 2006  
Pre-congress Workshops  
Welcome Cocktail  
June 29 – July 1, 2006  
Conference Presentations and Exhibits  
June 30, 2006  
Gala dinner

## AWARDS

John V. Basmajian Student Investigator Award  
DelSys Prize for EMG Innovation  
CRT Foundation Award for clinical application  
Compagnia di San Paolo Foundation award for basic research  
SME (Small Medium Enterprises) Award for technology transfer  
SME (Small Medium Enterprises) Award for engineering development

## CONGRESS SCIENTIFIC COMMITTEE

Secretary general:

Roberto Merletti

Chairs:

Dario Farina

Alberto Rainoldi

Administrator:

Sara Lecce

Logistics:

Andrea Bottin

CONGRESS

ORGANIZATION

MAF Servizi, Torino, Italy

Website: [www.isek2006.it](http://www.isek2006.it)

## CONFERENCE VENUE

Lingotto Congress Centre,  
Via Nizza 280, Torino

## OPENING CEREMONY

Welcome of the authorities  
In memoriam of Prof. Yukio Mano, Secretary General for ISEK 2000  
Toshio Moritani  
Opening Speech  
Roberto Merletti

## SOCIAL PROGRAM

Welcome Cocktail at the Cinema Museum (Mole Antonelliana)  
Gala dinner at the Arsenale Palace

## REGISTRATION FEES

Congress registration fee:  
400 Euro  
Workshop registration fee:  
60 Euro

## PRECONGRESS WORKSHOPS

Workshop proposers are responsible for the organization of the workshop, the invitation of speakers and the preparation of teaching material for distribution. The Congress Organization will not cover the travel and accommodation costs of the speakers. Teaching material of each workshop will be on sale. Teaching material for one workshop will be included in the workshop registration fee. The courses will be in parallel.

- W1. **Respiratory muscles: an interesting approach to pulmonary diseases**  
E. N. Bruce, Center for Biomedical Engineering, University of Kentucky (USA)  
M. A. Mañanas, Biom. Eng. Research Center, Technical University of Catalunya, Spain
- W2. **EMG and exercise physiology**  
M. Minetto, Università di Torino, Italy  
A. Rainoldi, LISiN, Politecnico di Torino, Italy
- W3. **Wearable/Ambulatory Technology and its applications**  
P. Bonato, Movement Analysis Laboratory, Harvard University, Boston, USA.
- W4. **Decomposition of the EMG signal**  
C.J. De Luca, Neuromuscular Research Center, Boston, USA
- W5. **Information extraction from surface EMG**  
R. Enoka, University of Colorado, USA  
D. Farina, Center for Sensory-Motor Interactions, Aalborg University, DK
- W6. **Sensory -motor interaction and muscle pain**  
Thomas Graven-Nielsen, Center for Sensory Motor Interaction, Aalborg University, DK

## CONGRESS SCIENTIFIC TRACKS

- T01. EMG modeling (D. Farina, D. Stegeman)
- T02. EMG signal processing (T. Kiryu, P. Parker)
- T03. Incontinence and pelvic floor EMG (P. Enck, R. Merletti)
- T04. Gait and movement analysis (M.G. Benedetti, C. Frigo)
- T05. Movement disorders (C. Disselhorst-Klug, W.S. Marras)
- T06. Multichannel EMG and electrode arrays (G. Rau, M. Zwarts)
- T07. Motor control (P. Hodges, M. Schieppati)
- T08. Mechanomyogram (C. Orizio, T. Moritani)
- T09. Motor units (R. Enoka, Z. Erim)
- T10. Muscle fatigue (A. Rainoldi, S. Roy)
- T11. Neurophysiology (M.J. Zwarts, A.J. Fuglevand)
- T12. Physical Medicine and Rehabilitation (B. Arsenault, D. Falla)
- T13. Posture (F. Benvenuti, J.J. Carollo)
- T14. Rehabilitation engineering (T. Sinkjaer, M. Solomonow)
- T15. Sensor and wearable/ambulatory technology and applications (P. Bonato, D. De Rossi)
- T16. Spasticity (A. Esquenazi, H. Hermens)
- T17. Sports, elderly and space medicine and human performance (M. Narici, P. Tesch)
- T18. Technology transfer (J. Wallace, V. Zolesi)
- T19. Virtual and augmented reality in rehabilitation (P. Bonato, E. Keshner)
- T20. Applications in ergonomics (H. Hermens, G. Sjøgaard)

Cost of teaching material of each workshop: 20 Euro

#### DEADLINES

Abstract submission deadline:  
December 15, 2005  
Notification of acceptance:  
February 15, 2006

#### COMMERCIAL EXHIBITION

Interested companies please contact Andrea Bottin (andrea.bottin@eln.polito.it)

Sponsoring Organisations  
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Organisation has been provided by Camera di Commercio di Torino, Regione Piemonte, Provincia and Città di Torino

#### CONFERENCE LANGUAGE

The official language of the conference is English

## J. B A S M A J I A N L E C T U R E

**Phil Parker**, University of New Brunswick, Canada

Myoelectric control for powered prostheses: signal processing and applications

## KEYNOTE LECTURES

**Prof. Moshe Solomonow** University of Colorado HSC Bioengineering Division, USA

The role of ligaments in motor control

**Prof. Machiel J. Zwarts** University Medical Center St. Radboud, The Netherlands  
Clinical applications of surface EMG

**Prof. Paul Enck** University Hospital, Tuebingen, Germany

EMG of the pelvic floor muscles

**Dr. Winfried Mayr** Dept of Biomedical Engineering and Physics, University of Vienna

Novel emerging applications in Functional Electrical Stimulation

**Dr. Francesco Felici** IUSM, Roma, Italy

Neuromuscular responses to exercise investigated through EMG

*The keynote lectures are expected to be published (if accepted after peer review) on a special issue of the Journal of Electromyography and Kinesiology*



## News from the International Shoulder group

A date has been set for the 2006 meeting of the ISG. The meeting will take place in Chicago on 9-10 October. The announcement is on the website here: <http://isg.case.edu/node/59>

**The European Society of Movement Analysis for Adults and  
Children (ESMAC)  
&  
The Gait and Clinical Movement Analysis Society (GCMAS)**

**invite you to attend the**

**1st Joint ESMAC - GCMAS Meeting (JEGM06)  
Amsterdam, the Netherlands, September 28-30, 2006**



Dear Colleague,

It is our pleasure to announce **JEGM06: the 1st Joint ESMAC & GCMAS Meeting** which will take place in Amsterdam, the Netherlands from September 28-30, 2006.

Clinical Gait and Movement Analysis is an interdisciplinary area, that attracts people from various scientific backgrounds, ranging from clinicians to engineers. The GCMAS (Gait and Clinical Movement Analysis Society) and ESMAC (European Society for Movement Analysis in Adults And Children) helped clinical movement analysis growing, over the last decades. In 2006 ESMAC and GCMAS will join their annual scientific meeting to be held in Amsterdam, and this meeting is called JEGM06. It will be preceded by seminars and a gait course.

**Who should attend:**

- orthopaedic surgeons, neurologists, pediatricians and rehabilitation physicians
- biomechanists, human movement scientists and biomechanical engineers
- kinesiologists, physical and occupational therapists
- students are encouraged by special lowrated student-fees.

So update your agenda and we look forward to welcoming you in Amsterdam next year.

With kind regards,

Scientific Board Chair: Roy Davis & Jaap Harlaar  
Local Organising Committee: Jaap Harlaar & Caroline Doorenbosch

For more information: [www.jegm06.org](http://www.jegm06.org)



# 5<sup>th</sup> World Congress of Biomechanics



## Munich, July 29th - August 4th 2006

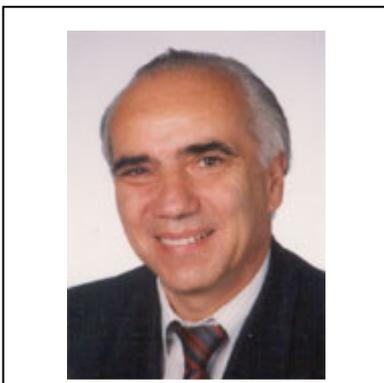
The Institut of Biotechnik e.V. together with the Technical University of Munich and Munich University of Applied Sciences cordially invite you to the 5th World Congress of Biomechanics 2006.

Biomechanics covers a wide field from solid to fluid mechanics, from motion sports mechanics to automobile crash tests. It includes tissue engineering and biomaterials, artificial organs and sports therapy.

At the 5th World Congress the newest experimental studies will be presented. Special emphasis will be placed on state-of-the art technology and medical applications. Only new, unpublished papers will be accepted.

The 5th World Congress of Biomechanics will explore topics of interest to:

- physicans
- bioengineers
- mechanical and aerospace engineers
- clinicians in cardiology and other cardiovascular specialties
- vascular surgeons
- radiologists
- neurologists and neurosurgeons
- orthopedic surgeons
- specialists in areas such as bone, ligaments, tissue mechanics, biologists, biochemists, biophysicists, biorheologists



**Congress Chair:**

Prof.Dr.-Ing.habil.  
Dieter Liesch

For more information: [www.wcb2006.org](http://www.wcb2006.org)

## ISB Membership News

### New Members to ISB

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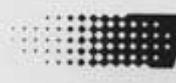
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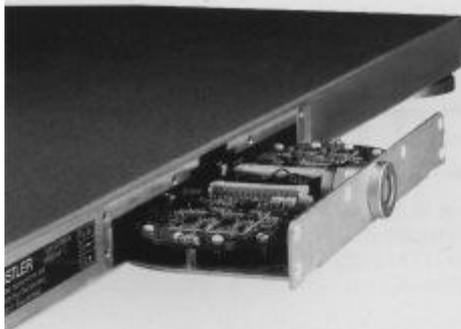
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