



International Society of Biomechanics Newsletter

ISSUE Number 97

February, 2006

ISB Officers

PRESIDENT

Dr. Brian L. Davis
Department of Biomedical Engineering
The Lerner Research Institute (ND 20)
The Cleveland Clinic Foundation
9500 Euclid Avenue
OH 44195, USA
Tel: 216 444 - 1055
Fax: 216 444 - 9198
E-mail: davis @bme.ri.ccf.org

PRESIDENT-ELECT

Dr Walter Herzog
Faculty of Kinesiology
University of Calgary
2500 University Drive
Calgary, AB T2N 1N4
CANADA
Tel: (403) 220-8525
Fax: (403) 284-3553
E-mail: walter@kin.ucalgary.ca

PAST-PRESIDENT

Dr. Mary Rodgers
Dept. of Physical Therapy &
Rehabilitation Science
University of Maryland School of Medicine
100 Penn Street
Baltimore, MD 21201USA
Tel: (410) 706-5658
Fax: (410) 706-4903
E-mail: mrogers@umaryland.edu

SECRETARY-GENERAL

Dr. Julie R Steele
Department of Biomedical Science
University of Wollongong
Wollongong NSW 2522
AUSTRALIA
Tel: 61-(0)2-42213881
Fax: 61-(0)2-42214096
E-mail: julie_steele@uow.edu.au

TREASURER

Dr. Graeme A. Wood
PO Box 3156
Broadway
Nedlands, WA 6009
AUSTRALIA
Fax: 61-8-97 64 1643
E-mail: gwood@cygnus.uwa.edu.au

NEWSLETTER EDITOR

Dr. Karen Sogaard
National Institute of Occupational Health,
Lersø Parkallé 105
DK-2100 Copenhagen
DENMARK
Phone: +45 39 16 53 46
Fax: +45 39 16 52 01
Email: ks@ami.dk

TABLE OF CONTENTS

Note from the President Brian L. Davis	2
Minutes from the ISB General Assembly Julie R. Steele	4
XXth ISB Congress 2005 report Brian Davis	9
Note from the student representative Cheryl Metcalf	12
Julie Steele Business woman of the year	13
Editor's notes Karen Sogaard	14
NEWS - Amazon book shop on the homepage Graeme Wood	14
Upcoming Meetings, Workshops XVI Congress ISEK 2006 ISG 2006 JEGM06: the 1 st Joint ESMAC & GCMAS Meeting 5 th World Congress of Biomechanics	15
ISB Membership News	18

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 3rd 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 Fukushima, 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 31st to August 5th, 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

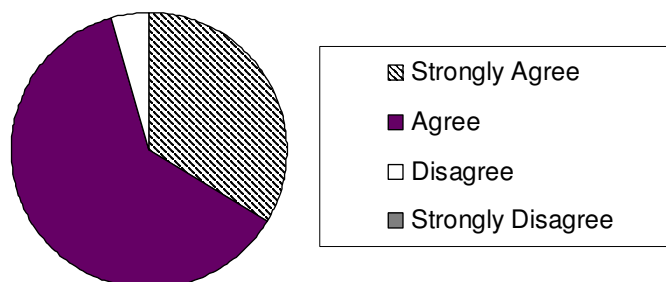


Figure 2. Over 95% of the survey respondents increased their knowledge of biomechanics.

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!)

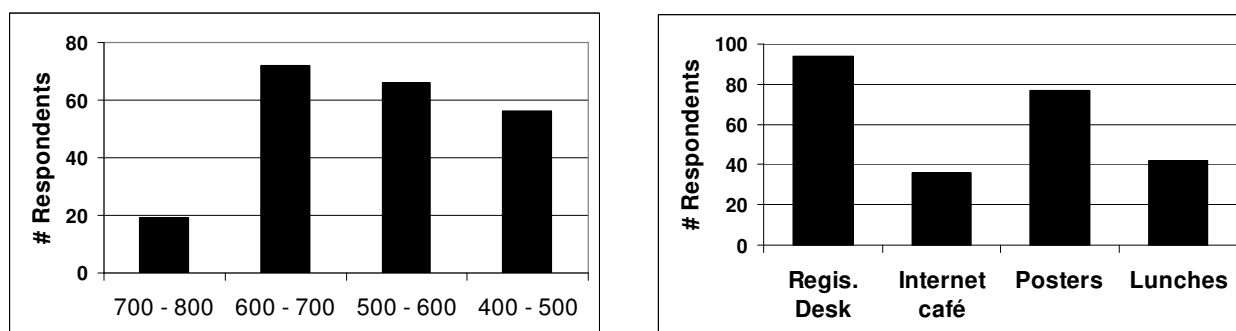


Figure 3. Respondents had varying opinions as to (a) “For a conference with 1000 presentations, how many should be posters?”, and (b) Which should be located closest to the exhibit hall, (i) Registration Desk, (ii) Internet Café, (iii) Posters, or (iv) Lunch area?”

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)



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 23rd, 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

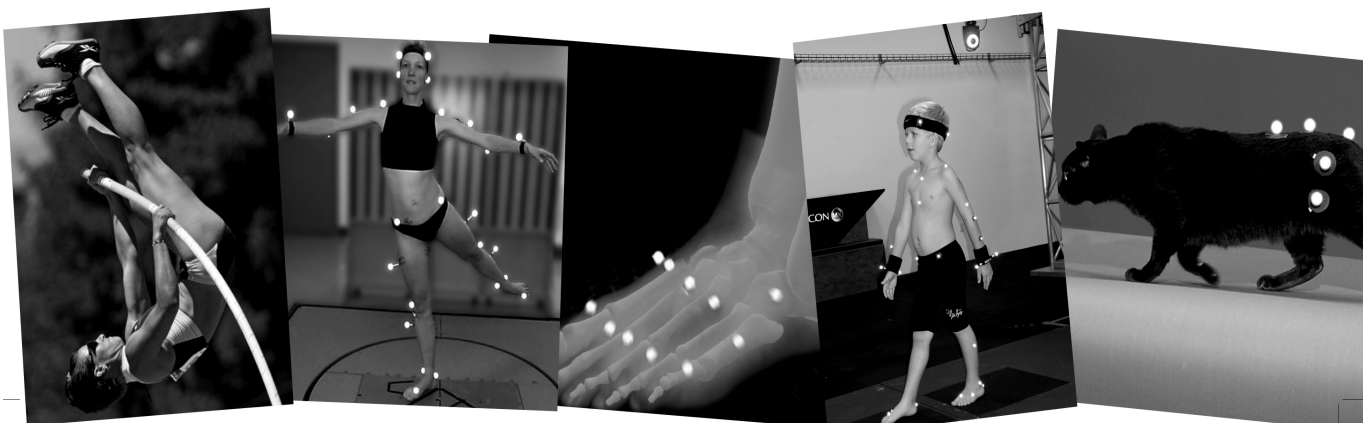
For both video and digital optical
movement analysis - Vicon Peak.

California: (949) 472 9140

Colorado: (303) 799 8686

UK: +44 (0) 1865 261800

Web: www.viconpeak.com



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.

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.

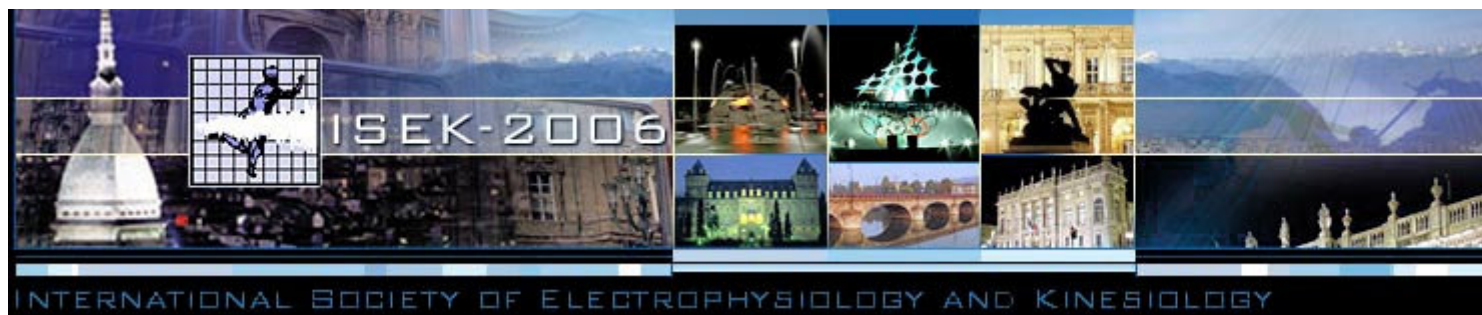
Kind regards,

Graeme

Graeme A. Wood, PhD
ISB Treasurer
E-Mail: gwood@cygnus.uwa.edu.au
Fax: +61-8-9386 8589

Disclaimer: The International Society of Biomechanics is not providing any express or implied endorsement of the books listed on its website, ISBWEB.ORG, and all business transactions are conducted through Amazon.com.

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

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
Support for Congress
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



5th 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 Liepsch

For more information: www.wcb2006.org

ISB Membership News

New Members to ISB

Mr. John Willenbruch
Health and human sciences
University of Brighton
81, Shepherds Walk,
Hythe, kent CT21 6PZ
United Kingdom

Mr. Christopher Lambert
Kinesiology
Texas Woman's University
1481 Golf Club Drive
Lantana, TX 76226
United States of America

Mr. Benjamin Spurgeon
8 Astoria Crescent
Hull, HU8 9BJ
United Kingdom

Miss Teresa Phillips
Queensland Children's Gait
Laboratory
Royal Children's Hospital,
Brisbane
3 Chailey Street
Aspley, Queensland 4034
Australia

Mr. Stephen Dank
Applied Orthopaedics and
Science Consultancy
14 Edridge Road
Bankstown, NSW 2200
Australia

Miss Gemma Whatling
Institute of Medical Engineering
and Medical Physics, School of
Engineering
Cardiff University
37 Monmouth Way
LLantwit Major, Vale of
Glamorgan CF61 2GT
United Kingdom

Prof. Kazuo Funato
Training Science
Nippon Sport Science University
7-1-1, Fukasawa, Setagaya-ku
Tokyo, 158-8508
Japan

Dr. Sasho MacKenzie
Human Kinetics
Saint Francis Xavier University
P.O. Box 5000
Antigonish, Nova Scotia B2G
2W5
Canada

Ms. Kathleen Jagodnik
Department of Biomedical
Engineering
Case Western Reserve
University
9240 Winchester Valley
Chesterland, OH 44026
United States of America

Mr. Kenneth Philbrick
Department of Nutrition and
Exercise Sciences
Oregon State University
3007 NW Harrison Blvd #2
Corvallis, OR 97330
United States of America

Dr. Benedicte Vanwanseele
Exercise and Sport Science
University of Sydney
Faculty of Health Science
Lidcombe, NSW 1825
Australia

Dr. Svein Kleiven
CTV (Centrum för Teknik i
Vården), Neuronic Engineering
Royal Institute of Technology,
KTH-South
Novum Research Park,
Huddinge, 141 57
Sweden

Mr. Michael Kinchington
Centre For Podiatric Medicine
Suite 1003 Level 10
Sydney, New South Wales 2000
Australia

Mr. Brian Wallace
Exercise and Sport Science
University of Wisconsin-La
Crosse
1122 Rockdale St.
Green Bay, WI 54304
United States of America

Mr. Kan Kuang Huei
P.O.Box 117-930
Taipei City 106, x
Taiwan

Dr. Knoek van Soest
Faculty of Human Movement
Sciences
Vrije Universiteit
van der Boeorchorststraat 9
Amsterdam, 1081 BT
Netherlands

Miss Robyn Dunlop
Kinesiology
Laurentian University
729 St. Clair Street
Sudbury, P3E 4G9
Canada

Mr. Vivek Pinto
Ergonomics and Biomechanics
New York University
1 Washington Square Village
Apt. 13C
New York, PA 10012
United States of America

Dr. Glenn Klute
Department of Veteran Affairs
602 38th Avenue
Seattle, WA 98122
United States of America

Ms. Ava Segal
Mechanical Engineering
University of Washington
1104 North Allen Place
Seattle, WA 98103
United States of America

Mr. casey myers
Rehabilitation
North Valley Rehabilitation
Hospital
1222 Vine st.
Aspen, CO 81611
United States of America

Dr. Marianne Wilhelm
Biomedical Engineering
Wayne State University
818 W. Hancock
Detroit, MI 48201
United States of America

Mr. Mark Budgeon
Kinesiology
Pennsylvania State University
128 W Hamilton Ave
State College, PA 16801
United States of America

Dr. Cathy Holt
Cardiff School of Engineering
Cardiff University
Queens Buildings, The Parade
Cardiff, Cardiff CF24 3BZ
United Kingdom

Dr. Richard Kent
Mechanical and Aerospace
Engineering
University of Virginia
1011 Linden Ave
Charlottesville, VA 22902
United States of America

Ms. Susan Kotowski
Dept. of Environmental Health
University of Cincinnati
3223 Eden Ave
Cincinnati, Ohio 45267-0056
United States of America

Dr. Kornelia Kulig
Biokinesiology and Physical
Therapy
University of Southern California
1540 East Alcazar Street, CHP-
155
Los Angeles, CA 90089
United States of America

Miss Melanie Cluss
Kinesiology
University of Michigan
3310 Packard #2B
Ann Arbor, MI 48108
United States of America

Dr. Jack Winters
Biomedical Engineering
Marquette University
10320 N Provence Ct
Mequon, WI 53092
United States of America

Mr. John Whitting
Biomedical Science
University of Wollongong
30 Waratah St
Windang, NSW 2528
Australia

Mr. Chandramouli Krishnan
Physical Therapy and
Rehabilitation Science
University of Iowa
Musculoskeletal Biomechanics
and Sports Medicine Research
Laboratory,
Iowa City, Iowa 52242
United States of America

Mr. Ryan McVey
PO Box 600
Biggera Waters, QLD 4216
Australia

Dr. Bing-Shiang Yang
Sensory Motor Performance
Program
Rehabilitation Institute of
Chicago and Northwestern
University
345 E Superior St, Suite 1406
Chicago, Illinois 60611
United States of America

Mr. Jason Forman
Center for Applied Biomechanics
University of Virginia
1011 Linden Ave.
Charlottesville, VA 22902
United States of America

Mr. Mauro Foresti
Laboratory for Biomechanics
ETH Zurich
ETH Hönggerberg
Zurich, 8047
Switzerland

Mr. urs stöcker
laboratorium für biomechanik
eth zürich
hci e451
zürich, 8093
Switzerland

Dr. silvio lorenzetti
laboratorium für biomechanik
eth zürich
hci e451
zürich, 8093
Switzerland

Dr. Andrew Kohm
Research and Development
Kyphon
1221 Crossman Ave
Sunnyvale, CA 94089
United States of America

Dr. Kathy Browder
Health, Physical Education,
Recreation, & Dance
University of Idaho
PEB 101
Moscow, Idaho 83871
United States of America

Dr. Robin Queen
Surgery
Duke University
102 Finch Yeager Building
Durham, NC 27710
United States of America

Mr. JAEBUM PARK
Kinesiology
University of Maryland, College
Park
2351 Health & Human
Performance Building
College Park, Maryland 20742
United States of America

Mr. Deepesh Desai
Health and Human Performance
Auburn University
560 North Perry Street,
Auburn, Alabama 36830
United States of America

Daniel Hassett
Center for Sports Medicine and
Rehabilitation
University of Minnesota
302 Archibald Lane
Dundas, MN 55019
United States of America

Mr. LU YUAN
Work Environment
University of Massachusetts
Lowell
9 2nd Ave. #4
Lowell, MA 01854
United States of America

Mr. Nels Johnson
1005 SE 15th Avenue #11
Minneapolis, MN 55414
United States of America

Dr. Robert Levine
Florida BioMechanics Group
7730 Starkey Road
Seminole, Florida 33777
United States of America

Ms. Jennifer Yentes
California State University,
Fullerton
1550 N Poinsettia Pl #301
Los Angeles, CA 90046
United States of America

Melissa Thompson
Integrative Physiology
University of Colorado
980 Gillaspie Dr.
Boulder, CO 80305
United States of America

Dr. Don Anderson
Orthopaedics and Rehabilitation
The University of Iowa
2181 Westlawn
Iowa City, IA 52242-1100
United States of America
Mr. Andrew Sims
12/6 Taranto Rd
Marsfield, NSW 2122
Australia

Ms. Nadine Dunk
Kinesiology
Waterloo
Department of Kinesiology,
University of Waterloo
Waterloo, Ontario N2L 3G1
Canada

Dr. thomas mclaughlin
Motion Reality, Inc.
suite 140
marietta, ga 30062
United States of America

Mr. Tim Bhatnagar
Biomedical Engineering
The University of Western
Ontario
181 Castlegrove Blvd.
London, N6G 3T9
Canada

Mr. Mark Watts
Brisbane Orthopaedic and
Sports Medicine Centre
Level 5 Arnold Janssen Centre
Brisbane, Queensland 4000
Australia

Ms. Sherry Di Jorio
301 E. Rose Lane
Phoenix, AZ 85012
United States of America

Ms. Tiffany Edgecombe
Mechanical Engineering
University of Calgary
307 Strathcona Mews, S.W.
Calgary, AB T3H 1X4
Canada

Prof. John McPhee
Systems Design Engineering
University of Waterloo
200 University Ave. W.
Waterloo, Ontario N2L 3G1
Canada

Mr. Sam Augsburger
Motion Analysis Laboratory
Shriners Hospital for Children
1900 Richmond Road
Lexington, Kentucky 40502
United States of America

Miss Sylvana Garcia
Mechanical Engineering
University of Wisconsin -
Madison
1019 Milton St. apt. 106
Madison, Wisconsin 53715
United States of America

Ms. Stacey Meardon
Health and Human Performance
Iowa State University
723 20th Street
Des Moines, IA 50314
United States of America

Mr. Ross Miller
Health and Human Performance
Iowa State University
235 Forker Building
Ames, Iowa 50011
United States of America

Mr. Alexander Razzook
Physical Disabilities Branch
National Institutes of Health
9000 Rockville Pike
Bethesda, Maryland 20892-1604
United States of America

Ms. Elissa Phillips
Sport and Exercise Science
University of Auckland
Private Bag 92019
Auckland, 1020
New Zealand

Dr. Stephen Levinson
Physical Medicine and
Rehabilitation
Wayne State University
15 East Kirby Street, Apartment
1203
Detroit, MI 48202
United States of America

Miss Samantha Reid
School of Physical & Health
Education,
Kingston, ON K7L 3N6
Canada

Mrs. Monica Castillo
Neuroscience and Pain
Universidad Rey Juan Carlos
c/Rodriguez San Pedro, Número
53, Piso 5 Izq
Madrid, Madrid 28015
Spain

Ms. Sabrina Lee
Kinesiology
Pennsylvania State University
29 Recreation Building
University Park, Pennsylvania
16802
United States of America

Ms. Sara Stabelfeldt
Kimberly-Clark Corp
2100 Winchester Road
Neenah, WI 54956
United States of America

Mr. Chris Barr
Bioengineering
University of Strathclyde
106 Rottenrow East
Glasgow, G4 0NW
United Kingdom

Shiv Shanmugan
106 Rottenrow
Glasgow, G4 0NW
United Kingdom

Mr. Cody Bliss
1365 West Calle Rancho Rio
Tucson, AZ 85714
United States of America

Mr. Justus Ortega
Department of Integrative
Physiology
University of Colorado
UCB 354
Boulder, CO 80309
United States of America

Mr. Shahram Amiri
Mechanical Engineering
Queen's University
130 Stuart St
Kingston, ON K7L3N6
Canada

Ms. Sharna Clark-Donovan
Nike Sport Research Lab
Nike Inc.
One Bowerman Drive
Beaverton, OR 97006
United States of America

Mr. Robert Catena
Human Physiology
University of Oregon
2545 Birch Lane
Eugene, OR 97403
United States of America

Dr. Scott MacKinnon
Human Kinetics
Memorial University of
Newfoundland
School of Human Kinetics and
Recreation
Memorial University of
Newfoundland
St. John's, Newfoundland A1C
5S7
Canada

Mr. Philippe Favre
Biomechanics Laboratory,
Department of Orthopedics
Balgrist, University of Zurich
Forchstrasse 340
Zurich, Zurich 8008
Switzerland

Reuben Escorpizo
19 Homewood Ave Unit 101
Toronto, Ontario M3M 2Y3
Canada

Dr. Martin Simoneau
Kinesiology
Laval University
Laval University, PEPS
Quebec, G1K 7P4
Canada

Ms. Inga Krauss
Medical Clinic, Department
Sportsmedicine
Tuebingen, Germany
Bismarckstr. 26
Tuebingen, 72072
Germany

Mr. Heiko Schlarb
adidas Innovation Team
adidas-Salomon AG
5055 N Greeley Avenue
Portland, OREGON 97217
United States of America

Ms. Rasika Parkar
Biomedical Engineering
The University of Texas at
Arlington
700 W Mitchell Circle,
Arlington, TX 76013
United States of America

Mrs. Nicola Wade
TippToes Ltd
Gooldscross
Cashel, Tipperary 0
Ireland

Dr. Yun Wang
Dept. of Kinesiology
Penn. State University
Motor Control Laboratory
College Park, PA 16802
United States of America

Mr. Shinsuke Yoshioka
Department of life sciences
Tokyo University
Meguroku Komaba 3-8-1
Tokyo, 168-0072
Japan

Mr. Seungbum Koo
74 Barnes Court Apt. #618
Stanford, CA 94305
United States of America

Dr. Joris N Leijnse
Mechanical Engineering
University of Louisville
10503 Shadow Ridge Lane #204
Louisville, Kentucky 40241
United States of America

Prof. LIN-HWA WANG
PHYSICAL EDUCATION
NATIONAL CHENG KUNG
UNIVERSITY
1, UNIVERSITY ROAD
TAINAN, 701
Taiwan

Mr. Jeremy Mogk
School of Kinesiology & Health
Science
York University
Bethune College
4700 Keele Street,
Toronto, Ontario M3J 1P3
Canada

Ms. Robyn Wharf
Human Kinetics
University of Ottawa
42-110 Havelock St.
Ottawa, ON K1S 5L3
Canada

Mr. Erik Karlson
Motion Analysis Laboratory
Children's Hospital, San Diego
2821 Morena Blvd. # 19
San Diego, CA 92117
United States of America

Miss Katherine Blais
Invention Factory
The Timberland Company
8 Rasmussen Circle
Andover, MA 1810
United States of America

Dr. Monica Maly
School of Kinesiology and
Health Science
York University
365 Bethune College
Toronto, Ontario M3J 1P3
Canada

Mr. Marius Henriksen
The Parker Institute
Frederiksberg Hospital
Ndr. Fasanvej 57
Copenhagen, 2000
Frederiksberg
Denmark

Mr. J. Keith Gullledge
Kinesiology
Indiana University
2036 N Walnut St
Bloomington, IN 47404
United States of America

Mr. Nathan Neckel
Biomedical Engineering
Catholic University of America
2657 S. Walter Reed Dr.
Arlington, Va 22206
United States of America

Heather Angel
Mechanical Engineering
Colorado School of Mines
1180 Terry St.
Golden, CO 80401
United States of America

Ms. Andrea Lay
Georgia Institute of Technology
780 Penn Ave, Apt B
Atlanta, GA 30308
United States of America

Mr. Christopher MacLean
Exercise Science
University of Massachusetts
3630 East 1st Avenue
Vancouver, British Columbia
V5M1C3
Canada

The International Society of Biomechanics
Gratefully Acknowledges the Support
of these Companies



 **Motion Analysis**TM

3617 Westwind Blvd. Santa Rosa, CA, 95403 Tel: 707-579-6500 / FAX 707-526-0629

VICON***PEAK***

VICON 

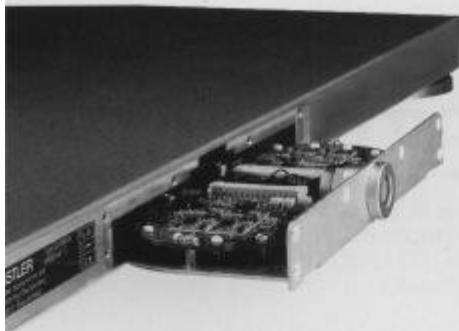
Kistler Bio-mechanics Ltd.
Mill Lane, Alton, Hampshire GU34 2QJ, GB
Tel (0 14 20) 54 44 77
Fax (0 14 20) 54 44 74

KISTLER

Kistler Instrumente AG Winterthur
PO Box 304, CH-8408 Winterthur, Switzerland
Tel + 41 - 52 224 11 11; Fax 224 14 14
www.kistler.com/biomech

20

Strides Ahead in Gait Analysis



Innovative design together with the highest quality of manufacturing results in the outstanding performance of Kistler Force Platforms.

Kistler Force Platforms meet the needs of virtually any application from dynamic sporting activity through to the quiet-rhythm of standing balance.

Contact us for more information.

Kistler Instruments Ltd., Alresford House, Mill Lane, Alton, Hampshire GU34 2QJ, UK
Tel. +44 1420 54 44 77, Fax +44 1420 54 44 74, sales.uk@kistler.com

Kistler Instrumente AG, PO Box, CH-8408 Winterthur
Tel. +41 52-224 11 11, Fax +41 52-224 14 14, info@kistler.com

KISTLER
measure. analyze. innovate.