

**December 2015**

**ISB *Now***



**December  
2015**

# Table of Contents

<b>President's Blog, December 2015</b> .....	1
<b>Students' Corner</b> .....	1
<b>Updates from the Technical Groups</b> .....	3
<b>Biomechanics in South America</b> .....	3
<b>ISB Grant Reports</b> .....	6
<b>Emeritus Members</b> .....	9
<b>List of new members, December 2015</b> .....	10

# President's Blog, December 2015

By Ed Chadwick | December 2015

As 2015 draws to a close, many of us will be reflecting on the year that's past. Grant success, grant rejections, publication success, publication rejections; all seem part of a normal year for an academic. Hopefully the positives have far outweighed the negatives and you are all enthused to rush into 2016 with optimism.

Rather than looking back on what ISB achieved in 2015, I thought I would take the opportunity to gaze into my crystal ball to see what might be on the horizon for us in 2016 and beyond.

I'm happy to announce that I have been in discussions with the President of ISEK and the ISEK 2016 conference organisers about hosting an ISB keynote address and an ISEK-ISB podium session as part of the XXI ISEK Congress to be held in Chicago in 2016 (July 5-8). I'm pleased to be able to announce that the ISB keynote at that meeting will be Professor Scott Delp from Stanford University. Scott is the James H. Clark Professor and founding Chairman of the Department of Bioengineering and Director of the National Centre for Simulation in Rehabilitation Research and is a longtime member and supporter of ISB. I'm sure those of us who will be attending ISEK will be very keen to listen to Scott's keynote address. Over the next few weeks ISEK and ISB member and former councillor, Professor Karen Søgaard, will be working with our ISB Educational Officers (Professor Taija Finni and A/Prof Glen Lichtwark) to develop an engaging ISEK-ISB podium session.

A link to the XXI ISEK Congress can be found here: [http://www.isek.org/?page\\_id=230](http://www.isek.org/?page_id=230)

On a similar note, the American Society of Biomechanics (ASB) will be hosting their annual conference in Raleigh, North Carolina, from August the 2nd to the 5th. ISB will also be sponsoring a keynote address during the ASB conference and I'm pleased to be able to announce that Professor Tibor Hortobagyi from The University of Groningen will be giving that address.

A link to the ASB conference can be found here: <http://asb2016.asbweb.org>

The ISB Council will also be having our annual face-to-face meeting during the ASB conference, which I'm sure be a great opportunity for members of the two societies to meet and discuss common interests. Although not officially confirmed at the time of going to press, I'm fairly confident that the ISB2017 congress organising committee will be hosting an 'Aussie Barbecue' during the ASB conference (evening to still be confirmed). So for those of you attending the meeting in Raleigh, come along to the BBQ and hear about what's being planned for ISB2017 in Brisbane, Australia.

A link to ISB2017 can be found here: <http://www.biomech2017.com>

Last but not least, I thought you might like to listen to a recent podcast hosted by "The Science Show", a regular item from the Australian Broadcasting Commission (ABC). Professor Simon Gandevia from Neuroscience Research Australia talks about "Challenges for Scientists as they Report and Publish their Results. Food for thought!

<https://radio.abc.net.au/programitem/pgga6dDWL6?play=true>

*Andy Creswell*

University of Queensland

# Students' Corner

By Ed Chadwick | December 2015

What an exciting year 2015 has been for the Society! We have a remodelled website which you can view [here](#). It's very user-friendly and definitely worth having a look around. I recommend the [Tutorials and Lectures](#) section which includes a Grant Writing Workshop, Keynotes from previous meetings, special lectures on a range of topics, and more.

The [Student Section](#) of the website is also looking great. As most of you will know, the [Student Grant](#) information was updated in early November, ahead of our December application deadline. Those of you who applied for the Matching Dissertation Grant (MDG), International Travel Grant (ITG) and International Affiliate Development Grant (IADG) Programs will be notified on the outcome of your application by February 1, 2016 - good luck to everyone who applied!

Technical Group Meeting Travel Grant (TGTG) applications are also due on February 28, 2016. Technical Group Meetings to be held in 2016 include:

- 14<sup>th</sup> International Symposium on the 3-D Analysis of Human Movement ([website](#))
- 11<sup>th</sup> Conference of the International Shoulder Group ([website](#))

The ISB offers up to \$500USD to support student members attending Technical Group meetings to present their research.

The Society reached an exciting milestone earlier in the year, hosting the 25<sup>th</sup> Congress of the ISB in Glasgow, Scotland. We had a great attendance from Student Members - thank you to everyone who joined us. I hope many of you are starting to think about our 2017 meeting in Brisbane, Australia! The Organising Team is working hard to bring you updates and they even have a [Congress App](#) you can download for all the important Conference information.

As you may remember from the previous ISB Now, I've started a YouTube playlist titled 'Advice to Students'. During the 2015 Congress, I asked eight delegates for a small piece of advice I could share with the ISB student community. The second instalment features our President-Elect, Dr. Joseph Hamill from the University of Massachusetts Amherst and can be viewed [here](#). Interestingly, the topic of the clip is the importance of attending conferences and how this can be beneficial to your research. Our next video will feature Dr. Andrea Hemmerich from Queen's University. Once again, a very big thank you to all our contributors!

Keep in the loop - 'like' the [ISB Facebook page](#), join our [Student Members Facebook Group](#) and [LinkedIn Group](#) and follow us on [Twitter](#) for ISB related updates.

As always, if you have any feedback, comments, suggestions or questions I'd love to chat. Contact me on the email address below, or via our social media channels.

And last, but certainly not least - please don't forget to renew your ISB membership for 2016, which you can do [here](#).

Kind regards,

*Kirsty McDonald*

isb.studentrepresentative@gmail.com

## Student Travel Grants

Delsys are very generously offering 25 Graduate Student Travel Grants for 2016. In lieu of more traditional holiday gifts, Delsys has set aside \$10,000 USD (\$400/student) to aid Graduate Students attending domestic and international conferences in 2016.

Graduate students attending ACSM, ECSS, ASB and SFN conferences are encouraged to apply. Abstracts accepted for oral or poster presentation will be reviewed for the award. Deadline for submission is April 29, 2016.

See [http://www.delsys.com/2015\\_corporate-holiday/](http://www.delsys.com/2015_corporate-holiday/) for further information.

## Updates from the Technical Groups

By Ed Chadwick | December 2015

Dear colleagues - Just a quick reminder of the work being done by the Technical Groups and by the Working Groups of the ISB, particularly the activities being held this year:

The [XIV International Symposium on 3D Analysis of Human Movement](#) will be held from July 18 to July 21, 2016 in Taipei, Taiwan. Deadline for abstract submission: **January 31, 2016**.

The **International Shoulder Group** will be holding their [11th biennial meeting in Winterthur](#), Switzerland, from July 14-16 2016. The deadline for abstract submission is **February 12, 2016**.

The **working group in Motor Control** will have two activities next year:

- The 3rd Workshop Symposium on Motor Control in Biomechanics will be held in Boston (USA) on May 31st 2016, on the opening day of the 63rd Annual Meeting of the American College of Sports Medicine (ACSM).
- The 4th Workshop Symposium on Motor Control in Biomechanics will be held in Chicago (USA) on July 5th 2016 on the opening day of the XXI Congress of the International Society of Electrophysiology and Kinesiology (ISEK).

The ISB Technical Groups on Computer Simulation (TGCS) and Footwear Biomechanics, and the working group in Hand and Wrist Biomechanics are organizing their meetings in 2017 alongside the next ISB congress.

*António Veloso*

## Biomechanics in South America

By Ed Chadwick | December 2015

### **A report from our Economically Developing Countries officer Felipe Carpes**

Right after the ISB Congress in Glasgow it took me a while to get updated on all the EDC activities. After a couple of months this short report brings some novelties to the ISB members. Once again I would like

to invite all members to take part in the EDC programs and contribute to the development of Biomechanics in the economically developing countries.

As you remember, during the ISB Congress the EDC Micro Grant Competition was held. The two projects awarded received the grant and have started work on their projects. Prof Le Li sent us a report in which he acknowledge to the ISB in the project and University's website. [Take a look!](#) Early in 2016 the EDC officer will request updates on the activities of all the EDC programs that are in the ISB website. The idea is to help these projects to get disseminated and also to bring attention of other members willing to contribute to the EDC projects!

In South America we also have some news that I want to tell you. Last November during a Biomechanics Conference in Medellin it was possible to discuss with Colombian researchers the advances of Biomechanics in Colombia and also try to help them solving questions and difficulties in the establishment of the Colombian Society of Biomechanics. A major difficult in Colombia is the limited number of researchers engaged in biomechanics. However, this reality starts to change. They organized a biannual congress in which participants from different parts of the country are able to come (this year, Prof. Marco Vaz - former ISB executive council member - and I had the honor to be the international invited speakers). I have no doubt that Colombia will very soon establish their Biomechanics Society and when it happens, we will give all support so they can become an affiliated society of the International Society of Biomechanics.



*Felipe Carpes and Marco Vaz in Colombia*

Impressive fast and significant advances are also noted in Chile. In the previous two years I have been in contact with some Chilean researchers involved in biomechanics and related fields. They attended some events in Brazil and after the ISB Congress in Natal they definitely decided to establish their society. And it happened! Last October, during a travel to Chile to participate in a congress, Prof. Walter Herzog was the keynote speaker in the founding meeting of the Chilean Society of Human Movement Sciences. I asked prof. Walter Herzog for a short report of his visit to Santiago:

*"On October 28th, 2015, the Chilean Society of Human Movement Science was officially formed. There were approximately 40 scientists from Chile at the all morning meeting. Mauricio Delgado from the Pontificia Universidad Catolica de Chile Joel Álvarez of the Universidad Metropolitana de Ciencias de la Educación were leading the proceedings. The aim of the society is to be registered as a not for profit organization within the next six months, organize a first scientific conference of the society in the fall of 2016, and work towards becoming an affiliated society of the International Society of Biomechanics (ISB). The general mission statement of the society is to foster human movement science research in Chile, allow for better communication and use of resources in human movement science in*



*Chile, and to establish an international profile, in part with the help of the International Society of Biomechanics. I gave a 30 minute presentation on the expectations of an ISB affiliated society and the rules and processes that need to be followed to become an ISB affiliated society. The Chilean Society of Human Movement Science plans to officially apply for affiliated status at the 2017 ISB conference in Brisbane Australia."*



*The Chilean Society of Human Movement Science*

I was in Santiago two weeks ago and I can tell you this group is highly motivated. Walter's visit and talk were (of course) fundamental to motivate the entire group. Particularly, I considered a very interesting strategy to establish a "Human Movement Science Society" since in Chile the number of researchers working specifically in biomechanics is not as big as it is in Brazil (for example). Therefore, they were able to put together people from different fields (physical education, physiotherapy, neuroscience, engineering and others), which can be very productive. It can be a good strategy for other countries willing to establish scientific societies that will also leverage biomechanics. Want to learn more about this? Take a look at some [photos](#) and a [video](#) of the activities!

Well, 2015 is almost over. Time to plan for 2016. As your EDC officer my main goal is to promote activities that can benefit economically developing countries. Among the specific purposes for 2016 is a complete update in information from the EDC programs we have in our website, providing the ISB members with information about the progress of those projects and also hear from the coordinators the difficulties they may have been experiencing in the last year. Hopefully we will be able to use the mentorship tool of ISB to help EDC proposals as well. Together the whole executive council we will keep working to promote opportunities of sponsorship for EDC projects. Finally, and perhaps the most important, if any of you are interested in joining this team and help the EDC program, please let me know.

Best wishes for the holidays!

*Felipe P Carpes*

# ISB Grant Reports

By Ed Chadwick | December 2015

## Aaron Fox

*PhD Candidate, School of Exercise and Nutrition Sciences, Deakin University, Australia*

First and foremost I would like to thank the International Society of Biomechanics for the support in the form of a **Congress Travel Grant** which gave me the opportunity to attend and present at the 25<sup>th</sup> Congress of the International Society of Biomechanics in Glasgow, Scotland. The conference program was full of interesting keynote presentations and podium sessions, with the quality of the work being presented of the highest standard of any conference I have attended.

I was lucky enough to be accepted for two oral presentations, both focusing on investigating optimal methods for field-based screening of anterior cruciate ligament injury risk in female athletes. This was the first opportunity I had to present my work to a room full of biomechanists, and was therefore an exciting opportunity to see how it would be received by an audience of experts. From my perspective the presentations went well, and having the opportunity to present opened up alleys for conversations with other researchers currently working in this field. The breaks and social events throughout the program allowed these conversations to continue and also provided the chance to meet face-to-face with some colleagues I had previously only interacted with via e-mail. Having the ability to engage in conversation with world leaders in the field of biomechanics was certainly a highlight of the conference.

Another highlight was the range of student-focused sessions and events organised. These included the mentoring session, mock academic interview, and student event. The mentoring session allowed us to question a number of experts on topics such as data collection and analysis techniques, job opportunities, and grant applications. The mock academic interview was something new, and provided information surrounding the questions to expect in an interview, how to (and how not to) answer these, and what prospective employers are looking for in these situations. The student event at Go Ape Zip Line and Treetop Adventures was a great way to get to know fellow students attending the conference, and was also heaps of fun.

This was my first time attending an ISB Congress and it was an eye-opening experience, providing motivation and direction to continue working in the field of biomechanics. This congress certainly won't be my last, and am looking forward to seeing everyone in Brisbane, Australia in 2017!

## Claudiane Fukuchi

*Neuroscience and Cognition Program, Federal University of ABC, Brazil*

I currently am a PhD student in the Neuroscience and Cognition Program at the Federal University of ABC - Brazil, under supervisor of Prof. Marcos Duarte. I was awarded the ISB **Student Travel Grant** that allowed me to visit Prof. Richard Baker at the University of Salford for a few months (May-July 2015). During the time I was in Salford I was primarily involved in a research study aiming at understanding how speed can influence the gait patterns. The research facility at the University of Salford headed by Prof. Baker is internationally recognized for its clinical gait research and I had the opportunity to broaden my knowledge in this area. Specifically, I was able to conduct an experiment where I looked the influence of gait speed on the Gait Profile Score index developed by Prof. Baker. Dr. Baker gave me the opportunity to discuss the work and helped me to understand important things in the data related to this index.



I also had the opportunity to attend the Clinical Gait Analysis course offered by Prof. Baker and his team. The clinical gait analysis course covered important scientific and clinical concepts that will certainly benefit me in my future research and clinical practice. As a physiotherapist, I have been struggling to combine clinical and biomechanical knowledge to advance the understanding about the effects of musculoskeletal impairment on gait patterns. The course designed by Dr. Baker as well as the experience I had working closed to him demonstrated to me that it is indeed possible to combine both skills.

My trip to UK ended at Glasgow where I could attend the 25th Congress of the International Society of Biomechanics. At the ISB Congress, I had the chance to meet other researches and to discuss not only the research I did in Salford but also other research topics that grasp my interest. Additionally, the keynote speakers delivered fascinating topics in different areas of biomechanics where I could learn what other researches outside of my field of interest are doing.

I would like to thank the ISB for the financial support that allowed me to have this unique experience which will certainly positively impact not only my PhD studies but also my career as a clinician and researcher. I would like to take this opportunity to specially thank Prof. Baker for his guidance, support and this unique opportunity to learn interesting things in the gait analysis field.

## **Ian M. Russell**

*Biomechanics Laboratory, University of Southern California, Los Angeles, California, USA*

My name is Ian Russell and I am a second year PhD student in the Biomechanics Lab at the University of Southern California under Dr. Jill McNitt-Gray. My area of research is on the biomechanics of manual wheelchair propulsion in the spinal cord injury population. I am extremely grateful to have received the **Student Travel Grant** for 2015 which enabled me to attend the 25<sup>th</sup> Congress of the International Society of Biomechanics in Glasgow.

At the conference I was able to present my original research on “Modifications in Wheelchair Propulsion Technique with Speed”. This presentation covered research I had done with Rancho Los Amigos National Rehabilitation Hospital on how individual manual wheelchair users with paraplegia modify propulsion mechanics to accommodate expected increases in reaction forces generated at the pushrim with self-selected increases in wheelchair propulsion speed. Presenting my research in the wheelchair propulsion session at the conference allowed me to easily connect and get valuable feedback from the other institutions around the world also conducting research on wheelchair propulsion.

A year ago a colleague in my lab and I developed a novel method for reporting shoulder kinematics, which is especially useful for describing complex motions. We developed it when tasked with describing the motion of the upper arm relative to the torso while moving a wheelchair into the backseat of a car. Our kinematic representation method resolves many of the problems with current methods such as singularities as well as providing a more intuitive representation of the motion that could be understood by both an engineer and a clinician. We presented this method to the International Shoulder Group at the ISB Conference. It was received extremely well and we were asked to draft a paper on it so that it could potentially be implemented as a new ISB Standard.

I would like to sincerely thank ISB for providing me with assistance to travel to this conference. The opportunity to present my research allowed me to contribute to the field of biomechanics and gave me renewed enthusiasm for the importance of researching the field of manual wheelchair propulsion.

## Ying Gao

*PhD student in Biomechanics, Department of Biology of Physical Activity, University of Jyväskylä, Finland*



My name is Ying Gao. Currently, I'm a PhD student in Biomechanics at the Department of Biology of Physical Activity, University of Jyväskylä, Finland. I would like to thank the International Society of Biomechanics (ISB) Council for awarding me the ISB **Student Congress Travel Grant** which allowed me to attend the XXV Congress of ISB 2015 in Glasgow, UK. The congress from the abstract submission, registration, poster and oral presentation sessions to social programme was all extremely well organized.

My highlights of the congress were keynote lectures which present the past, present and future of several key areas of Biomechanics by world leading researchers, e.g. by Prof. Aboufazel Shirazi-Adl and Prof. Judith Meakin who were working in pairs to present their perspectives on Spine issues, and Prof. Laurence Cheze and Prof. Claudia Mazzà in Measurement Technology. Because this was my first congress, all the sessions I attended were a unique experience but I especially enjoyed the student sessions, where students' were able to voice their views.

I gave an oral presentation in the Clyde Auditorium. In such a big room, I was excited to present my research on occupational sedentary behavior. My presentation went well and I received valuable feedback from the audience. I also benefited from meeting with great researchers and students throughout the congress from the opening ceremony to the closing ceremony and the congress party. Furthermore, I would like to thank my supervisors Prof. Taija Finni and Dr. Neil Cronin who encourage me throughout the PhD study process.

Finally, I want to thank again ISB and I am looking forward to the next ISB congress.

## Julie Ellis

*Ph.D. Candidate, College of Kinesiology, University of Saskatchewan*

I would like to extend my sincere gratitude to the ISB for the **Student Congress Travel Grant** I received which allowed me to attend my first ISB Congress in Glasgow, Scotland in July 2015. I found the experience to be extremely valuable as it provided a rare opportunity for me to interact with expert researchers in my field in an international setting.

I presented a poster entitled "Development of a Bilateral Upper Limb Musculoskeletal Model to Investigate Muscle Contributions During Different Push-up Variations". I had the opportunity to discuss my work with other researchers working in modelling and simulation and received some great feedback

and suggestions regarding my current study and future work. I also had the opportunity to attend a tutorial session on Advanced Tissue Mechanics delivered by Dr. Philip Riches.

During the week I attended many presentations, and appreciated the exposure to the wide range of research being carried out in the biomechanics community. I took the opportunity to listen in on much of the research being done using OpenSim and gained a deeper more broad understanding of applications outside of my topic area as well as future directions in modelling and simulation. During my time at the conference I was able to consolidate my ideas and plans for the second half of my doctoral research project.

I attended all of the Keynote Presentations and enjoyed listening to these seasoned experts present some extremely insightful work and ideas. I took particular interest in the Knee Biomechanics lecture given by Peter Walker and Mark Taylor. I also felt quite honoured by the opportunity to listen to Carlo De Luca speak on his perspectives on Motor Control.

Once again I would like to thank the ISB for their financial support, as well as the presenters and attendees of the conference from whom I learned so much.

## **Emmanuel Souza da Rocha**

*Laboratory of Neuromechanics of Federal University of Pampa, Brazil*

I am a Master student supervised by Dr Felipe Carpes, and student representative from the Brazilian Society of Biomechanics. I received a **Congress Travel Grant** from the ISB that allowed me to attend ISB Glasgow 2015. I had two oral presentations and 2 poster presentations. It was an excellent opportunity to talk with several scientists of the International Society of Biomechanics. I traveled for 3 days and spent 10 hours in Amsterdam airport, but it was worth it!

During the event I presented the follow papers:

- How do ground reaction impact forces respond to changes in submaximal gait speed?
- Is the difference between preferred and non-preferred leading leg obstacle crossing larger in elderly fallers than in non-fallers?
- Webinar Series and internet broadcasts: a strategy to provide EDC regions with access to biomechanics.
- Variability on the peak plantar pressure in children, adults and elderly during walking.

I want to thank the International Society of Biomechanics for the opportunity; without your support it would not have been possible.

## **Emeritus Members**

By Ed Chadwick | December 2015

One of the lesser known categories of membership with ISB is 'Emeritus Member'. To be in this elite group the individual must be retired from professional employment in biomechanics, and to have been an active member of the Society for at least ten years prior to obtaining emeritus status.

Here is a list of our emeritus faculty. As you will see from this list, many emeritus members are still very much active in the field of biomechanics and/or the society!

- Barry Bates, University of Oregon
- Guido Bergmaier, Sportlehrer ETH
- Robert Gregor, The Georgia Institute of Technology
- Elizabeth Roberts, University of Wisconsin-Madison
- Eric Sprigings, University of Saskatchewan
- Guenter Rau, Aachen University of Technology
- Bart Van Gheluwe, Vrije Universiteit Brussel
- David Sanderson, University of British Columbia
- Christopher (Kit) Vaughan, University of Cape Town
- Jesus Dapena, Indiana University
- Graeme Wood, University of Western Australia
- W. Lutz Bauer, University of Bremen
- D. Gordon Robertson, University of Ottawa
- Sandra Olney, Queen's University
- Mont Hubbard, University of California
- Don Chaffin, University of Michigan
- Felix Zajac, Stanford University
- Christian Högfors Ziebell, Centre for Biomechanics, Göteborg
- Kim A. Burton, University of Huddersfield
- R. McNeill Alexander, University of Leeds
- Ian A.F. Stokes, University of Vermont

The list includes many names which may be familiar. It includes the longtime editor of *Clinical Biomechanics* (Kim), some former ISB Presidents (Guenter, Kit, and Sandra), a Muybridge award winner (McNeill), as well as former Executive Council members and congress keynote speakers. Also on that list is Graeme Wood, who organized our congress in 1991 and has served as our treasurer since 1989. No other ISB member has had such long continuous service to the ISB as Graeme, and we all owe him our thanks.

## List of new members, December 2015

By Ed Chadwick | December 2015

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