

# March 2018



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# List of new members - March, 2018

By Dieter Rosenbaum | March 2018

1. Georgios Stylianides; Associate Professor; Lebanon Valley College; Exercise Science; United States
2. Viswanath Sundar; Ph.D. Research scholar; Bharathidasan University; Physical Education; India
3. Aliaa Rehan; Associate Professor; Cairo University; Orthopedic Physical Therapy; Egypt
4. Elena Eusterwiemann; Postgraduate Researcher; Research Institute for Sport and Exercise Sciences; Sport and Exercise Sciences; United Kingdom
5. Constantine Nicolozakes; Graduate Student; Northwestern University; Biomedical Engineering; United States
6. Eric Perreault; United States
7. Ming Zhang; Professor; The Hong Kong Polytechnic University; Department of Biomedical Engineering; Hong Kong
8. Natalia Siedlecka; Engineering Student; UTP Bydgoszcz; Wydział Inżynierii Mechanicznej; Poland
9. Dr. Gail Forrest; United States
10. Emma Baillargeon; PhD Candidate; Northwestern University; Biomedical Engineering;
11. Magdalena Syrek; Physiotherapist; Carolina Medical Center; Physiotherapy; Poland
12. Zachary Shepelak; Student; University of Utah; Kinesiology; United States
13. Greg Guederian; Engineering Manager; Arthrex Inc.; Shoulder Arthroplasty; United States
14. Sook Yee Chong; Research Engineer; Universitätsklinikum Tübingen; Orthopaedic Surgery; Germany
15. Jessie Odom; United States

## Award Reports, March 2018

By Dieter Rosenbaum | March 2018

### **Student Travel Grant Report March, 2018 by Cassandra Thompson**

Travel is a wonderful and inevitable part of pursuing a career in research and academia. It is wonderful meeting new people, and experiencing different cultures. The personal development that comes with such opportunities is also invaluable. My father would probably describe it as building 'intestinal fortitude': strength which comes from stepping out of your comfort zone, courage and confidence to present your hard-earned knowledge without fear of judgement, and independence to catch a plane for the first time in your life and never look back. The inevitable, is that experience in a world-renowned laboratory is very desirable for job prospects. Thankfully I was given such an opportunity through the International Study of Biomechanics.

At the beginning of my honours year, I wrote a proposal and stumbled onto using peripheral nerve stimulation; specifically, the Hoffmann-reflex technique to probe spinal reflex excitability. My subsequent PhD was dependant on the working-order of three electrical stimulators, which look like they could be from the 1970's. Although modest, the positive of using simple techniques is that you become so enveloped in the physiology of human movement rather than mechanics of equipment. Being good at something seemingly simple, can be quite useful. And thankfully, Professor Jaap van Dieen also found something valuable in the techniques that I was using. I then applied for, and was successful in receiving an International Travel Grant (ITG) from the International Society of Biomechanics to visit Jaap's laboratory in Vrije Universteit, the Netherlands.

Reflecting on my time, I made incredible friends, learnt new techniques and struggled to speak Dutch. If I could have my time again, I would have stayed longer. I encourage all students to apply for this opportunity and be a part of this society that offers so much to foster and support the research that we (students) conduct. I have learnt so much, and was able to experience what it is like to be in a large research group. The research environment at Vrije is centred on collaboration between academics, who also work closely with the incredible engineers and technical officers. However, it is important to give back. I was able to share the techniques that I have learned throughout my PhD, create protocols for running future experiments and worked closely with the technical officers to set-up their lab to be able to continue this research.

Before applying, I was hopeful, but did not think my application for the student ITG would be successful. I am incredibly thankful to the ISB council members for giving me this opportunity. I would like to thank Jaap van Dieen, Huub Maas and Sjoerd Bruijn for making me welcome at Vrije. A special thanks also goes to Jos van den Berg and Leon for their patience and assistance with making and modifying equipment for my stay.

Cassandra Thompson

## **Matching Dissertation Grant Report March, 2018 by Megan Dutton**

Motion analysis of the upper extremity has received increasing attention over the last 20 years. Studies conducted in overhead throwing, specifically the overhead pitch in baseball, have primarily focused on the measurement of mechanical load and stress on the shoulder and elbow joints, as well as injury prevention<sup>2-8</sup>. While overhead pitching is thought to be similar to the overhead throw utilised by cricketers when fielding<sup>9</sup>, a paucity of knowledge exists around the latter topic.

With the assistance of an ISB Matching Dissertation Grant, a dissertation titled: *“The Cricketing Shoulder: Biomechanics and Analysis of Potential Injury Risk Factors to the Shoulder in elite Cricketers,”* has been conducted. This dissertation is specifically orientated around the throwing techniques utilised by cricketers when fielding and included a shoulder specific musculoskeletal screen, as well as biomechanical assessment of throwing technique. A total of 25 elite male cricketers, (each performing a total of 42 throws) were assessed, in order to determine:

1. The kinetics and kinematics of various throwing actions (overarm, side-arm and under-arm) in cricketers, highlighting the shoulder joint.
2. The effect of movement or displaced centre of gravity while throwing on the above kinetics and kinematics of the shoulder joint
3. The potential correlation for injury, between throwing technique and musculoskeletal variables (range of motion of shoulder rotation, upward scapula rotation and hip rotation; isometric strength of the scapula stabilisers, rotator cuff musculature and hip abductors; and the flexibility of pectoralis minor muscle and posterior shoulder complex).

Currently, all data is being processed and analysed with the intention that these results should be available by March/April 2018.

Thank you once again for your generous support. Kind regards

Megan Dutton PhD (Exercise Science and Sports Medicine) Registered Physiotherapist

Division of Exercise Science and Sports Medicine Department of Human Biology Faculty of Health Sciences University of Cape Town P.O. Box 115, Newlands 7725, South Africa

# Technical Groups Report March 2018 by Elizabeth Clarke

By Dieter Rosenbaum | March 2018

## ***Hand and Wrist Biomechanics International***

HWBI IS ACCEPTING MEMBERS... MEMBERSHIP IS FREE!

Hand and Wrist Biomechanics International (HWBI) was officially formed in 2012 on the 20 year anniversary of the International Symposium on Hand and Wrist Biomechanics. The vision for this core interest group has been to enhance the advancement of hand and wrist biomechanics and its clinical application by facilitating interdisciplinary scientific exchange among engineers, surgeons, therapists, and others. If you are interested in actively engaging in this mission, we invite you to fill out the online membership form. At this time, membership is free. To fill out the membership form, click here (<http://www.hwbi.org/membership>).

## ***Motor Control Group***

### **Upcoming Symposia on Motor Control in Biomechanics at ACSM 2018 and WCB 2018**

We are pleased to announce two upcoming Symposia of the [ISB Working Group in Motor Control](#) in conjunction with the ACSM 2018 and WCB 2018 conferences. The Symposia will feature internationally renowned speakers presenting their work at the intersection of Motor Control and Biomechanics.

**Who Should Attend:** Researchers and students with an interest in Biomechanics and Motor Control should attend. Participants will have the opportunity to discover the latest developments in these fields and discuss with experienced investigators.

#### **7<sup>th</sup> Symposium on Motor Control in Biomechanics at ACSM 2018**

**“Innovative techniques towards a new approach to sports and exercise”** (see [flyer](#))

**When:** Tuesday May 29<sup>th</sup> 2018, 9:00 AM - 12:00 PM

**Where:** [65th American College of Sport Medicine \(ACSM\) Meeting](#), Minneapolis (USA)

**Registration and Fee:** Attendance is free. If you would like to attend, please register [here](#).

#### **Invited Speakers:**

- Dr. Darryl Thelen (University of Wisconsin-Madison, USA)
- Dr. João Paulo Vilas-Boas (University of Porto, Portugal)
- Dr. Ezio Preatoni (University of Bath, UK)
- Dr. Ross Miller (University of Maryland, USA)
- Dr. Angus Hunter (University of Stirling, UK)
- Dr. Jasper Reenalda (Roessingh Research and Development, University of Twente, Netherlands)
- Mr. Oladipo Eddo (George Mason University, USA)

#### **8<sup>th</sup> Symposium on Motor Control in Biomechanics at WCB 2018** (see [flyer](#) here)

**When:** 8<sup>th</sup>-12<sup>th</sup> July 2018

**Where:** [8<sup>th</sup> World Congress of Biomechanics \(WCB\)](#), Dublin (Ireland)

**Registration and Fee:** Attendance is free for all WCB attendees. Registration is open on the [WCB 2018 website](#)

**Invited Speakers:** Each invited talk will be followed by oral presentations. The full schedule will be announced soon.

- Dr. Antonie J. (Ton) van den Bogert (Cleveland State University, USA)
- Dr. Robert D. Gregg, IV (University of Texas at Dallas, USA)

**De Luca Foundation, MA (USA):** The Symposium is kindly sponsored by the [De Luca Foundation](#). The De Luca Foundation was established by Professor Carlo J. De Luca. The goal of the foundation is to recognize researchers in the field of Electromyography and Biomechanics with emphasis on Motor Control. It provides an annual award, the Delsys Prize; and the Emerging Scientist Award administered by ISB.

For additional details, see <http://www.mcg.isbweb.org/> or contact us at [info@mcg.isbweb.org](mailto:info@mcg.isbweb.org)

We look forward to seeing you at these Events!  
Sincerely, ISB Working Group in Motor Control

### **International Shoulder Group**

Preparations for the 12<sup>th</sup> Meeting of the International Shoulder Group (ISG) are underway! This year's ISG meeting will be held immediately after the American Society of Biomechanics (ASB) meeting, from August 12-13, 2018, at Mayo Clinic in Rochester, Minnesota, USA. Dr. Melissa (Missy) Morrow and Dr. Meghan Vidt, along with the ISG Executive Board are finalizing preparations for the biennial meeting of this ISB technical group. This year's meeting will feature a diverse and enriching program, with discussions encompassing surgical, rehabilitation, experimental, basic science, and computational modeling aspects as they relate to all things shoulder. The program will also feature a single track of podium presentations and posters to spark discussion among attendees. Unique to this year's program, all keynotes will be complementary pairs featuring prominent women researchers in the field. This meeting also provides ample opportunity for student engagement, and shoulder enthusiasts at all levels and disciplines are encouraged to attend. ISG has also received generous support from the ISB to sponsor student and presentation awards for this meeting. Registration for the meeting will be open from May 1<sup>st</sup> - July 31<sup>st</sup>, so mark your calendars and get ready for in-depth discussions about shoulder research. We look forward to seeing you in Rochester in August! More information can be found at [CE.MAYO.EDU/ISG2018](http://CE.MAYO.EDU/ISG2018).

### **Footwear Biomechanics Group**

The Footwear Biomechanics Group will be active in 2018. Scheduled so far are dedicated FBG sessions at the International Foot and Ankle Biomechanics Community (i-FAB) in New York, USA on April 8-11, 2018 and the 8<sup>th</sup> World Congress of Biomechanics in Dublin, Ireland from July 8-12, 2018.

At the WCB, invited speakers, **Dr. Wolfgang Potthast** (German Sport University Cologne) and **Dr. Sharon Dixon** (University of Exeter), will be presenting their most recent research in footwear biomechanics along with other leading researchers.

### **Upcoming 2019 Footwear Biomechanics Symposium**

The Footwear Biomechanics Symposium is the official conference of the [Footwear Biomechanics Group](#), a technical group of the [International Society of Biomechanics](#) with the aim to encourage research and promote discussion of biomechanical issues related to functional footwear, including sport shoes, clinical and prescription footwear and footwear designed for special purposes.

The 14th Biennial Footwear Biomechanics Symposium will be held immediately prior to the [27th ISB Congress](#), at the beautiful [Delta Lodge](#) in Kananaskis, Alberta, Canada from July 28 - July 30, 2019. The conference organizers and the [University of Calgary](#), in association with the Footwear Biomechanics

Group, cordially invites all colleagues to share and discuss various topics related to footwear science.

The conference program will include three world renowned [keynote speakers](#), Dr. Thor Besier (University of Auckland), Dr. Richard Kent (University of Virginia) and Dr. Rodger Kram (University of Colorado Boulder) plus multiple special invited speakers and many additional oral and poster presentations over the course of three days. The conference not only includes many ground-breaking presentations within the realm of [Footwear Science](#) from academics all over the world, but the conference is fortunate to have a large industry presence including scientists and representatives from many of the top footwear companies. Aside from the many academic discussions and presentations, attendees will be invited to take part in multiple social activities throughout the course of the conference, including special student functions, which may provide students with networking opportunities with academic researchers and the many industry/footwear companies that are present at the event. Details of the full academic and social program will be available in the near future.

Following conclusion of the academic program, the symposium is capped off with the banquet, which will include the presentation of many scientific awards for papers presented during the conference.

Additional details and information on the conference is available online at <http://fbs2019.footwearbiomechanics.org>. We hope to see you there!

### ***The ISB Technical Group on Computer Simulation***

The **ISB Technical Group on Computer Simulation** has a current membership totaling 209 from 32 different countries. Elections were held for the Executive Board in September 2017 resulting in the following:

Newly elected (first term) members

- Jeff Reinbolt (Chair)
- Mark King (Secretary)
- B.J. Fregly (General member)
- Michael Skipper Anderson (General member)
- Dario Cazzola (General member)
- Pavlos Silvetros (Student member)
- Continued (second term) general members
- Allison Kinney
- Marko Ackermann

Two new members, Dario Cazzola and Michael Skipper Anderson, organizing an ISB session at World Congress of Biomechanics titled "ISB Session 1 - Computer Simulation of Human Movement."

## **Students' Corner March, 2018 by Melissa Ann Boswell**

By Dieter Rosenbaum | March 2018

### **Wise Words from Past Student Representatives of ISB**

***Kirsty McDonald, PhD Student, School of Human Sciences, University of Western Australia,***

### **Crawley, Australia**

Take advantage of the mentorship program! Pair up with someone now, because this is the best ISB student resource. You can browse through the list of available mentors online and tee the whole thing up over email. You can also take part in mentor initiatives at conferences, such as roundtables and one-on-one pairings. Another thing you should do is network with other students – go to the student events at conferences, chat on the ISB student Facebook group. You might end up with good friends and future collaborators! A lot of hard work goes on behind the scenes, and it is great to be a part of a Society so focused on supporting its student members. The travel grant programs are also fantastic.

### **Kelsey Collins, PhD, Postdoctoral Fellow, School of Medicine, Washington University, St. Louis, Missouri, USA**

Don't be afraid to network and ask questions. The ISB has a palpable sense of community which offers an incredible amount of support and mentorship for students. The ISB executive is willing to support initiatives that facilitate student networking, mentorship, and of course, fun! In the role of ISB student representative, I was afforded the opportunity to interview many influential ISB members and work closely with other students and Postdoctoral fellows. Being able to meet at off-year meetings (i.e. WCB 2014) at ISB-sponsored events provided continuity and engagement of students, as well as additional professional engagement opportunities. The focus on student development really sets the ISB apart, and I have benefited directly from that!

### **Antonia Zaferiou, PhD, Director of Motion Analysis, Rush Medical College, Rush University, Chicago, Illinois, USA**

Don't be afraid to talk about your research projects early in your PhD and not be scared of critiques, especially in development. ISB Congress is a great way to meet to new people. During the student events, you meet friends that you will stay friends with through your career as you share the challenges and excitements of becoming an independent researcher. Being a part of the mentoring program helped me connect with other students and network with leaders in biomechanics. I feel very committed to be a lifelong member because of how welcomed I was into the society. It's also great to meet people who enjoy traveling the world and learning about different cultures.

### **Allison Gruber, PhD, Assistant Professor in Kinesiology, School of Public Health, Indiana University Bloomington, USA**

Be supportive of fellow researchers, even those in a competitive line of research! Get involved with the society and sign up for the student events and mentoring. Make connections with students and established professors. This will help put a face to the name of your post-doc application. I still benefit from the collaborations that started when I was a student rep from 2009 to 2011.

### **Cheryl Metcalf, PhD, Principal Enterprise Fellow, Faculty of Health Sciences, University of Southampton, UK**

If you have even half an inclination to do something, do it. Get involved in the ISB community – say yes! You never know where decisions like this will take you. It's a fantastic networking opportunity, but also can open up doors in your career that you hadn't even thought of. You also gain an insight into what it takes to be a leader in your field – it's great as a learning experience. I still draw on this experience to help inform my own strategy and trying to think about risk mitigation, etc. It's been an invaluable opportunity.

### **Biomechanics on our Minds (BOOM) Podcast**

We have now released the first three episodes of our new biomechanics podcast, BOOM! It is available for free on [SoundCloud](#). The first episode is with Dr. Brian Davis from the University of Akron on



biomechanics “off the beaten path,” the second episode features Dr. Scott Delp from Stanford University on open science, and the third episode is with Dr. Filipe Carpes on biomechanics in economically developing countries. Be on the lookout for the fourth episode with Dr. Jill McNitt-Gray on collaborations across universities and disciplines. You can email us with ideas for biomechanics topics or to share a “research fail” on the podcast at [isb.studentrepresentative@gmail.com](mailto:isb.studentrepresentative@gmail.com).

### **World Congress of Biomechanics Student Event**

We will hold an event for the ISB students in Dublin during the World Congress of Biomechanics - more details to follow. Looking forward to seeing familiar faces from Brisbane and meeting new student members!

### **Connect with ISB on Social Media**

Keep up to date with ISB by liking our [ISB Facebook Page](#), joining the [Student Members Facebook Page](#) and following [ISB on Twitter](#)! If you have any feedback, comments, suggestions or questions please feel free to contact me at [isb.studentrepresentative@gmail.com](mailto:isb.studentrepresentative@gmail.com).

Additional thank you to Anne Koelewijn for her help with putting together the “Wise Words” article!

Kind Regards,  
Melissa Boswell

# **Up-Date on ISB 2019 March, 2018 by Walter Herzog**

By Dieter Rosenbaum | March 2018

## **ISB-ASB 2019 Calgary**

490 days to the opening of the ISB-ASB 2019 conference in Calgary, July 31<sup>st</sup>, 2019.

In the past few weeks, we have established an international scientific advisory board. Thank you to all of you who agreed to be part of this exciting event. At present, we are finalizing invited symposia sessions, and we would love to hear from you about topics and speakers.

Dan Ferris, the conference chair for the ASB 2019 has officially joined the local organizing committee and we had fruitful discussions on programming, keynote lectures, invited lectures and special symposia. We are grateful to our American colleagues for having decided to combine their annual conference with ISB 2019.

It is never too early to announce important dates; here are some that you might want to add to your calendar:

- **Abstract submission deadline:** **January 31<sup>st</sup>, 2019 [there will be no extension]**
- **Early registration deadline:** **May 15<sup>th</sup>, 2019**
- **Footwear Satellite Symposium:** **July 28-30, 2019 [Kananaskis Delta Hotel]**
- **Muscle mechanics satellite Symposium:** **July 27-29, 2019 [Canmore Nordic Centre Lodge]**

- **ISB-ASB conference dates:  
Convention Centre]**

**July 31-Aug 4, 2019 [Calgary**

Although not fully finalized, we are planning a muscle mechanics symposium in beautiful Canmore. Canmore is the site of the 1988 Olympic cross-country and biathlon events. It is situated approximately 1 hour from Calgary (University) and about 1.5 hours from the airport. There are regular buses from the Calgary International airport to Canmore, and it is a perfect location for visiting Banff National Park, go climbing, hiking, mountain biking in the Rocky Mountains. It was the site of the first "Muscles in the Mountains Conferences" in 1999, at that time with the unforgettable Andrew Huxley and many other prominent muscle mechanics and muscle physiology researchers. We are excited to host the 4<sup>th</sup> Muscles in the Mountains Conference in conjunction with ISB 2019.

Due to the size of the meeting rooms at the Canmore Nordic Centre, the Muscle Mechanics Satellite Symposium will be limited to 80 people on a first-come-first-serve basis. Registration for this conference will start on September 1, 2018.

The ISB-ASB conference is for you! We encourage you to contact us should you have any questions that are not answered on our website or any suggestions you may have for the conference: [www.isb2019.com](http://www.isb2019.com).

Sandro Nigg can help you with all technical questions regarding hotel reservations, registration, etc. at [Sandro.Nigg@ucalgary.ca](mailto:Sandro.Nigg@ucalgary.ca) while I am happy to answer questions regarding the scientific program at [whertzog@ucalgary.ca](mailto:whertzog@ucalgary.ca). We are here to serve you, and we want you to have a great conference; scientifically, socially, and hopefully also in combination with a holiday in the magical Rocky Mountains.

490 days and I can't wait to see you all, welcome you all, and commence what I hope will be an incredible scientific experience for all of us.

Walter Herzog (ISB 2019 Conference Chair)

## **President's Blog March, 2018 by Joe Hamill**

By Dieter Rosenbaum | March 2018

### **President's Blog      March, 2018 by Joe Hamill**

As the summer approaches (Northern Hemisphere summer), we are all gearing up for the myriad of conferences that will take place soon. The conference season starts off with the international-Foot and Ankle Biomechanics (i-FAB) symposium in New York City in April and continues with the conferences of the American College of Sports Medicine in May, the International Society of Electrophysiological Kinesiologists (ISEK) just prior to the World Congress of Biomechanics (in conjunction with the European Society of Biomechanics) in July, the American Society of Biomechanics in August and the International Society of Biomechanics in Sports in September. This list provides an ample opportunity for all to present their work, meet new and current colleagues and, best of all, to enter into discussions of your work with others. I have found over my career that attending meetings is important to promote your work and to generate ideas for future work.

As I mentioned in my previous blog, ISB will be well-represented at many of these conferences. In particular, at the World Congress of Biomechanics in Dublin, ISB will sponsor several sessions including a plenary session with President-Elect Toni Arndt as the speaker, three sessions organized by the **Technical Group on Computer Simulation** (Computer Simulation of Human Movement), by the **Footwear Biomechanics Group** and by the **Motor Control** working group.

One important event coming up soon that I would like to emphasize to ISB members is National Biomechanics Day, an event sponsored by 26 organizations and companies including ISB. This event, the brain-child of Dr. Paul DeVita, former President of the American Society of Biomechanics and Professor at East Carolina University, has gained world-wide attention and has brought biomechanics to prominence among other scientific disciplines. National Biomechanics Day (April 11, 2018) seeks to expand the influence and impact of biomechanics in our society by expanding awareness of the contributions of biomechanics among young people. Over 7,000 high school students from all over the world participated in the activities of National Biomechanics Day in 2017. The hope is that many more will participate in 2018. The principle slogan of National Biomechanics Day is: "Biomechanics will be the breakthrough science of the 21<sup>st</sup> century." I suggest you to read Paul's interesting article in the Journal of Biomechanics on why we need National Biomechanics Day. The link to this paper is:

<https://www.sciencedirect.com/science/article/pii/S0021929018302112>

As Dr. DeVita recounts in this paper that doing biomechanics is not enough to make biomechanics the breakthrough science of the 21<sup>st</sup> century, we must also show biomechanics to people. I urge you to organize laboratory activities and bring young people into the laboratory to introduce them to biomechanics. For more information, the National Biomechanics Day web site is:

<http://nationalbiomechanicsday.asbweb.org/>

I hope that all ISB members will take the opportunity to visit the BOOM podcast on the ISB web site. This is the work of the ISB Student Representative, Melissa Boswell. The podcast has interviews with several notable biomechanists who offer their take on a variety of subjects. I offer my thanks and congratulations to Melissa for this project.

Lastly, I wish you all a pleasant and productive summer or winter as the case may be. Be safe in your travels to holidays, conferences or just motoring around.

Joseph Hamill, Professor Emeritus

President, International Society of Biomechanics