Message from the President

Dear ISBS Members,

Greetings with spring blossoms from Denton, Texas, USA! In the Far-East Asian culture where I am originally from, this year is a year of ‘golden pig.’ I hope all members to enjoy an abundance of prosperity and fortune this year, which the golden pig symbolizes, in your professional and personal life!

Since last year the Society has sponsored National Biomechanics Day (NBD) which will be held on April 10 this year. If you have not participated in NBD yet, I’d like to encourage you to do so this year. NBD is a perfect place to showcase what sport biomechanics is all about and recruit future sport biomechanists. Please join me in this noble cause.

This year’s election is approaching and Dr. Randy Jensen, our Secretary General, will send out the ballots soon. Please participate in the election and cast your vote. If you are not running for any position this year, consider running next year and thereafter. We always need young, enthusiastic, and energetic directors and VPs and this is only possible by members’ willingness to participate in Society’s operation and decision-making process.

A professional society like us cannot continue to operate without the endless hard work of our dedicated officers. In this respect, please join me in thanking Randy Jensen for his service as the Society’s Secretary General for last 8 years. He will step down from the post this year. We’ve been in good hands for many years but will have to let him go. This position is not an elected position so any member can apply. The term is two years and is renewable with the approval of the Board of Directors. Please let me or other officers know if you are willing to serve for the Society in this capacity. The Board of Directors will select the new Secretary General at this year’s
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Message from the President
Young Hoo Kwon

pre-conference meeting in Oxford, Ohio, USA and the new term will start at the AGM.

Reports of our officers should be included in this newsletter. Please read them thoroughly and be well-versed in regards to Society’s operations and all current programs available.

Dr. Mark Walsh and his team at Miami University are working hard preparing for the upcoming 37th ISBS Annual Conference (July 21-25). Personally, I am so looking forward to visiting the Mid-west and Miami University again. The paper submission is over and I am sure you are either anxiously waiting for the final review outcomes or already working on the revision. I look forward to seeing your precious studies presented at this year’s Conference. Dr. Michiyoshi Ae of Nippon Sport Science University, my good friend and role model for last 25 years, will deliver the Geoffrey Dyson Lecture this year. In addition, several world-class speakers will give their keynote lectures. This year’s Hans Gros Emerging Researcher Award winner is announced within this issue of the newsletter and the young blood keynote session will inspire many young members. Several Applied Sessions are currently under development in the areas of mechanical analysis of golf swing/baseball pitching, assessment of primal movements, non-linear approach in gymnastics, and research in virtual environments. As was the case in Auckland last September, I have no doubt that this year’s Conference will mark as one of the best conferences in the history of the ISBS.

This letter will be the last one that I write as the President of the Society. My presidency will end at the AGM this year and will stay in the leadership for another year as the Past-President. It has been a privilege and honor to serve you and the Society. See you all in July in Oxford, Ohio!

Cheers,

Young-Hoo Kwon
President of the ISBS
The time for the 2018 ISBS elections is here! Following are the statements and photos of the candidates for the Board of Directors. A link to the ballot will be sent via email to all members with paid dues. Members may vote for up to 10 candidates.

Sarah Breen
Sarah Breen is an Associate Professor at Northern Michigan University. Sarah’s research interests include sport injury and clinical rehabilitation. Sarah has been an ISBS member since 2010, and has acted as the Vice-President of Publications since 2014. During this time, Sarah has administered upgrades to the ISBS website and supported the development of the ISBS conference paper submission system and repository. Sarah is currently acting as an editor for the ISBS 2019 conference proceedings. Sarah also promotes the society with the support of the Publications committee via Facebook, Twitter and an interactive ISBS newsletter.

Bryan Christensen
I am currently a Professor in the Department of Health, Nutrition, and Exercise Sciences at North Dakota State University, North Dakota, USA. I have been a member of ISBS since 1997 and have presented numerous times at the conference. I have held positions in several professional regional organizations including President of the Northland Chapter of the American College of Sports Medicine (NACSM). As President of NACSM I planned, organized, and recruited speakers for two regional meeting that drew 350 participants. My research interest in include the effects of various warm-ups on athletic performance and the biomechanics of track and field.

Floren Colloud
Floren is an Associate Professor in Sport Biomechanics at the University of Poitiers, France. Floren has been the chairperson of the 33rd ISBS conference and on the ISBS board for 2014-2018. His research interests focused on developing subject-specific 3D biomechanics models to analyse and simulate sports movement with a particular interest for cyclic sports. These research activities are strongly embedded in multidisciplinary collaborations with engineering, clinical and sport partners. I would like to serve again on the Board to contribute to the development of ISBS and to promote the transfer of knowledge between researchers and practitioners in sport.

Steffi Colyer
I obtained diverse applied experience during my internship at the New South Wales Institute of Sport (Sydney) before conducting my PhD with British Skeleton, directly applying science to practice in preparation for the Sochi Winter Olympics. After a 3-year Research Associate role, primarily focussed on sprinting and markerless mo-cap, I was recently appointed Lecturer in Biomechanics (University of Bath). I became an ISBS member in 2014 and have since actively contributed to conferences. Drawing on experiences across different phases of my career-to-date, I’m eager to promote opportunity for early-career scientists to integrate with established academics, facilitating progression of future leaders.

Sina David
My membership started with attending ISBS 2016 in Tsukuba where I really enjoyed the amicable and inspiring international community. In 2017, I was involved as scientific Co-Chair of the conference in Cologne, being responsible for the scientific program and proceedings. Standing up for election into the ISBS board is a great opportunity for me to partly give back the support I have received thus far from the ISBS by awarding me the ER Mobility Grant and by the encouraging spirit of the community. Therefore, I would like to become an active part of the development and progress of the ISBS.
ISBS Board of Directors Election

Randall Jensen
ISBS Secretary General

Yasushi Enomoto

Yasushi Enomoto is an Associate Professor in Faculty of Health and Sport Sciences, University of Tsukuba, Japan. He received Ph. D of biomechanics in distance running from University of Tsukuba 2004. He served as a secretary general at ISBS Tsukuba 2016 while attending the conferences since 2002. He is a member of scientific committee of JAAF and joined the biomechanical research project of IAAF World Championships in Osaka 2007. He is also a coach for middle and long distance runners from collegiate to international level. He could work to develop sports biomechanics in not only academic but also practical field.

Timothy Exell

I have attended ISBS symposia since 2007, serving on the board of directors and as VP of Research and Projects since 2015. I am also an editorial board member for Sports Biomechanics. In these roles, I am committed to supporting student and full members of ISBS through organising the student mentor programme and recently introduced grants to support our members’ research. I seek re-election, to continue the development of these opportunities for ISBS members. I strongly believe in the Society’s mandate of translating theory to practice and incorporate the philosophy of ISBS into my own teaching and research.

Laura-Anne M Furlong

A Lecturer in Biomechanics (Loughborough University), Laura-Anne’s research in running and hockey is underpinned by the ISBS ethos of bridging the gap between researchers and practitioners utilising practical evidence-based approaches. A society member and conference attendee since 2008, she is a reviewer and Social Media Editor for Sports Biomechanics, conference Scientific Committee member, student mentor and former student representative. As current Vice-President for Public Relations, she’s responsible for relationships with other biomechanics societies, student representation and promoting involvement with the international Biomechanics Day initiative. Re-election would allow Laura-Anne to continue contributing to ISBS, engaging members world-wide with activities and opportunities.

Drew Harrison

Drew Harrison is an Associate Professor in sports biomechanics at the University of Limerick in Ireland. His major research interests are in biomechanics of sprinting and jumping activities and the applications of functional data analysis in biomechanics. Drew is a Life member and Past-President of the ISBS and was co-chair of the ISBS Conference in Limerick in 2009. “I would be very happy to contribute to ISBS as a member of the Board of directors and give back to society. I believe the experience I have gained as a longstanding member of ISBS could be helpful to the board”.

Daniel Herman

Dr. Daniel Herman is an Assistant Professor of Orthopaedics and Rehabilitation at the University of Florida, and holds both a PhD in Biomedical Engineering and a MD with specializations in Physiatry and Sports Medicine. He has served ISBS since 2007 in multiple capacities, and is currently an Associate Editor for Sports Biomechanics. As a member of the ISBS Board of Directors, Dan aims to utilize his perspective and contacts as both a sports clinician and biomechanist to increase membership and participation in ISBS, particularly among clinicians, as well as building upon the society’s strengths in programming at the annual meeting.
**ISBS Board of Directors Election**

**Young-Tae Lim**

Young-Tae is a Professor in the Division of Sport & Health Science at the Konkuk University, Korea and vice-president of the Korean Society of Sports Biomechanics. He received his PhD in sports biomechanics from the University of Illinois at Urbana-Champaign in 2000. He has been a member of ISBS since 2000 attending nearly every ISBS Symposium since then. He made numerous presentations at ISBS symposia, was honored with the New Investigator’s Award (2000), and Fellow in 2013. He served as a member of the Board of Directors in 2005-2007 and would like to continue to contribute to the society.

**Kane Middleton**

Kane Middleton completed his PhD in 2012 at The University of Western Australia and is currently a Lecturer in Biomechanics at La Trobe University, Melbourne, Australia. His research foci are the enhancement of human performance and reduction of injury risk in both the sporting and occupational contexts. With a background in sports coaching, Kane values the translation of research into practice and having recently spent time working within industry (military), he looks forward to once again proactively contributing to the Society.

**Franky Mulloy**

I am a Lecturer in Biomechanics at the University of Lincoln, the applied research (enterprise) lead in my department, and also Biomechanics CPD rep for the British Association of Sport & Exercise Science. My research is driven by a desire to understand sporting performance, informing both researchers and practitioners. As an ISBS member since 2014 I have engaged academically, presenting and helped to organise applied sessions. I have engaged with the student mentorship programme, award schemes and now aspire to contribute formally. I would be honoured to serve on the Board and believe the future lies in maximising scientific engagement.

**Mitsuo Otsuka**

Mitsuo Otsuka is an Assistant Professor in the Faculty of Sport and Health Science at Ritsumeikan University. He completed his PhD at Osaka University of Health and Sport Sciences in 2011. His research ranges from elite sports to exercise in physical education. He clinched the ISBS Hans Gros New Investigator Award in 2012. He reviews papers for Sports Biomechanics regularly. He everyday coaches international-level sprinters and is passionate about bridging the gap between researchers and practitioners, the ISBS ethos. He is passionate about enhancing coaching practices through research and growing Sports Science in Asia.

**Shinji Sakurai**

Dr. Shinji Sakurai is a professor of sport biomechanics and head of Research Institute of Health and Sports Sciences at Chukyo University in Japan. He obtained his Ph.D. in biomechanics at the University of Tokyo. He has been working as a vice president of the Japan Society of Physical Education, Health and Sport Sciences as well as a chief director of Japanese Society of Biomechanics. He is a scientific committee member of both Japan Paralympic Committee and Nippon Badminton Association. He has participated in many ISBS Conferences, gave a keynote lecture in Beijing, and an applied session at Taipei.
**ISBS Board of Directors Election**

**Kelly Sheerin**

I am a Senior Lecturer at the Auckland University of Technology, while also managing the AUT Millennium Sports Performance Clinics. As part of a consortium of New Zealand biomechanists, I spearheaded the introduction of National Biomechanics Day initiative in NZ, attracting support funding from the government in consecutive years. I was also on the organising committee for the successful ISBS 2018 Conference hosted in Auckland, where I coordinated the Industry Partnership engagement. As part of my contribution to the Board I hope to continue to strengthen the Society’s connections with industry, as well as foster our links with young biomechanists.

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**Weiya Hao**

Dr. Weiya Hao is a professor of biomechanics at China Institute of Sport Science. He researches on performance enhancements and injury preventions for athletes from national teams of gymnastics and freestyle skiing aerials. He has published over 140 research articles. He has served as Secretary General for the Chinese Associate of Biomechanics in Sports for many years. He was one of major organizers for ISBS2005 meeting in Beijing. He participated in recent ISBS symposiums, such as in Taipei, Johnson City, Cologne, and Auckland. He wants to get more opportunities to contact with international colleagues and enhance Chinese research levels.
Recently voted by Forbes as the #1 Best College Town in America, Oxford (Ohio) is a small town community. There are close to 7,000 year-round residents and 18,000 Miami University students. The conference will primarily be held in the newly completed Armstrong Student Center (below). The beautiful university campus includes an abundance of red bricks and green space. Everything you will need is in walking distance from the Conference venue. Some of the places you may want to visit are our vibrant uptown area with shops, restaurants and pubs. For those interested we have about 17 miles (~27km) of trails in about 1000 acres of land around campus. We also have a state of the art recreation center (information about getting a one week pass will be available on the registration page).

Scientific Program: Keynote Speakers

**Karl Newell**

Dr. Newell is a Professor of Kinesiology at the University of Georgia. Dr. Newell’s research interests lie in the area of human movement in general and more specifically in motor learning and control. His research focuses on the coordination, control, and skill of normal and abnormal human movement across the lifespan; intellectual disabilities and development and motor skills; and, drug and exercise influences on movement control. One of his major themes of research is motor learning across the life span with an emphasis on the information for and dynamics of change in coordination, control, and skill of learning and development. The other major theme of his research is the study of variability in human movement and posture with specific reference to the onset of aging and Parkinson’s disease. He has over 400 publications in a range of journal articles, book chapters, and books. He has had essentially a career of external funding from primarily NIH and NSF.

**Walter Herzog**

Dr. Herzog is a Professor of Biomechanics with appointments in Kinesiology, Medicine, Engineering, and Veterinary Medicine, holds the Canada Research Chair for Cellular and Molecular Biomechanics, and is appointed the Killam Memorial Chair for Inter-Disciplinary Research at the University of Calgary. His research interests are in musculoskeletal biomechanics with emphasis on mechanisms of muscle contraction focusing on the role of the structural protein titin, and the biomechanics of joints.
focusing on mechanisms of onset and progression of osteoarthritis. Dr. Herzog is the recipient of the Borelli Award from the American Society of Biomechanics, the Career Award from the Canadian Society of Biomechanics, the Dyson Award from the International Society of Biomechanics in Sports, the Muybridge Award from the International Society of Biomechanics, and recently received the Killam Prize in Engineering from the Canada Council for the Arts for his contributions to Biomedical research. He is the past president of the International, American, and Canadian Societies for Biomechanics. He was inducted into the Royal Society of Canada in 2013.

Veronique Feipel

Veronique Feipel is currently Dean of the Faculty of Motor Sciences as well as Professor of Anatomy and Research Methodology at the Faculty of Medicine, Faculty of Motor Sciences, and Faculty of Pharmacy (ULB). She is also the coordinator of the Research Master in Motor Sciences at ULB. Her research interests include spine, wrist, and knee kinematics and anatomy, functional evaluations of the spine, kinematics applications of 3D computed tomography and gait analysis. Over the past few years, her personal interest in sports led her to focus research efforts on the prevention of running related injuries and its link to running biomechanics.

Toni Arndt

Toni is a professor in Biomechanics at the Swedish School of Sport and Health Sciences (GIH), where his present position combines biomechanical research with research supervision, teaching and administration. He is the Dean of Research and Doctoral Education at GIH. Toni has published over 60 articles in international peer reviewed journals in a wide spectrum of biomechanical topics but primarily covering Achilles tendon biomechanics and foot kinematics. He is at present main a supervisor for five PhD students within various research areas of musculoskeletal and sports biomechanics. He is President-Elect of the International Society of Biomechanics (ISB) and has chaired the ISB Technical Group of Footwear Biomechanics.

Jacqueline Alderson

Jacqueline is the group biomechanics lead at The University of Western Australia where she has been a member of Faculty since 2005. Specialising in the areas of biomechanical modelling, performance optimisation, and injury and disease prevention, she has more than a passing fascination with emerging technologies such as wearable sensors and imaging tools. She is a passionate proponent of STEM subjects in primary and high school curricula and an advocate for the adoption of artificial intelligence/big data tools to facilitate sport and health applications at-scale. Jacqueline is a Fellow of the International Society of Biomechanics in Sport and has published >130 peer reviewed books, book chapters, journal papers and conference proceedings. A UWA Innovation Fellow she has attracted funding from a wide variety of sources including; the Australian Research Council, Swimming Australia, teams from the Australian Football League, Cricket Australia, Hockey Australia, the International Cricket Council, the Indian Premier League, and the Australian Institute of Sport and their state based affiliates.
The AUT Millennium applied programme with elite biomechanists, scientists, athletes and coaches, will be a highlight of the conference. Mr Martin Dowson from High Performance Sport New Zealand (HPSNZ) is leading the applied programme held at the AUT Millennium precinct in Albany, north of Auckland, on Wednesday 13 September with the support of AUT Millennium and HPSNZ.

The AUT Millennium precinct where the AUT Sports Performance Research Institute New Zealand (SPRINZ) is based, is also home to HPSNZ supported sports such as athletics, sailing, canoe sprint, swimming. These sports and others (cycling, rowing, snow sports etc.) will be represented in the sessions you can choose from for the AUTM applied half day. These sessions will involve practical demonstrations of aspects of analysis and/or tools used to deliver in the field to directly positively impact athletes performances on the world stage.

Each delegate will attend one common session showcasing how we – SPRINZ and HPSNZ scientists, elite coaches and athletes – work together to improve sport performance and reduce injury risk. The state of the art facilities will be used for the interactive sessions. You will then attend two out of the sessions, which you will indicate when you register:

1. Biomechanics in Canoe Racing
2. Rowing Stroke Analysis
3. Paralympic Swimming Technique Analysis and Technology Development
4. Utilising Biomechanics in Track and Field Throwing Events
5. Biomechanics of Pole vault
6. Biomechanics Related to Athlete Development
7. Resistance Training Feedback / Training Devices
8. Sprint and Strength Biomechanics
9. Running Biomechanics
10. Cycling Biomechanics – Forces and Physiology
11. The Impact of Innovation on Biomechanics
12. Sports Medicine and Biomechanics
13. Analysis in a Challenging Environment (Sailing)
14. Wearable Technology in Snow Sports Load Monitoring

Following these engaging sessions, the day will finish with the Sir Graeme Avery Event with award winning New Zealand wine and cheese, to allow for further discussion and networking. Sir Graeme Avery, a founder of AUT Millennium, will attend the event where he will receive a recognition award for his contribution to AUT Millennium and the integrated use of sport science, in particular for athletics.

Buses will transport delegates from the city centre to the venue and back therefore your registration for the applied programme (free as part of your registration) is essential.

The applied sessions will take place over 2 days (Monday and Wednesday) and include the following:

**Dr Erich Bachman** – Research in Virtual Environments

**Glenn Fliesig** – Mechanical Analysis of Baseball Pitching

**Dr Gen Williams, Dr. Sophie Burton, Prof Karl Newell, & Prof Gareth Irwin (Chair)** – Biomechanics, motor control, and non-linear dynamics approaches to performance and injury in gymnastics sports

**Young Hoo Kwon** – Golf Swing Analysis and Feedback

**Drs. Morales & Hollandsworth** – Evaluating and Treating Primal Movements

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**Preview of ISBS 2019 Miami University Oxford Ohio**

**Applied Sessions**
A WORD FROM OUR PLATNUM INDUSTRY PARTNER

Alex Muir - Vicon Asia Pacific Manager

“We are truly excited about being a part of ISBS in Auckland. The spirit in which athletes, coaches, scientists and technology partners are working together means this is a unique era of collaboration in the Australasian and Asian regions. Auckland is perfectly placed to showcase these exciting times at ISBS 2018. From our sneak preview, we can confirm the organising committee are sculpting an extraordinary and intimate conference. I would recommend all ISBS’s industry partners and potential delegates to commit early; it will be a sensational conference!”

There are 12 one and a half hour workshops available. The workshops will be held Monday 10 September at the AUT Conference Centre. Registration for the free workshops, via the conference website is essential as places will be filled on a first registered, first placed basis. Further details will be provided on the website as industry partners confirm their sessions.

Workshops are provided to help delegates: increase their likelihood of success in publishing in journals such as Sports Medicine (Steve McMillan, Journal Editor at Adis, SpringerNature); interact with media to be able to amplify their work (Dylan Cleaver, award-winning sports editor at large for the NZ Herald); improve their ability to attract and create commercialisation and funding opportunities (Dr Philip Graham-Smith, Aspire Academy, Qatar); and consider pushing their boundaries of biomechanics and sport science by embracing artificial intelligence (Dr Boris Bačić and Assoc. Prof Russel Pears, Auckland University of Technology, NZ).

What makes a successful paper – an Editor’s perspective – Steve McMillan (Springer)

From a compelling cover letter to a concise conclusion, Sports Medicine’s Co-Editor in Chief, Steve McMillan, will provide an editor’s perspective on what makes a successful paper. Sports Medicine receives over 600 submissions a year and can publish only a quarter of these… How do the editors decide which manuscripts to send to peer review? Which manuscripts survive peer review? What details are essential to enable readers to best understand your research and allow for potential replication? What information is required from an ethical perspective? Why do word counts matter anyway?! This interactive workshop will guide you on how to produce an impressive manuscript and increase your chances of getting published in a reputable journal.

Steve McMillan is a Journal Editor at Adis, part of SpringerNature. He is currently Co-Editor-in-Chief of three journals: Sports Medicine, Sports Medicine-Open and Drug Safety-Case Reports. Steve started at Adis straight out of university, having completed an MSc in Sport & Exercise Science in 2005. Prior to becoming a Journal Editor, Steve gained experience as a Medical Writer, involved in reporting on and critically evaluating clinical drug trials, and as a writer/editor of newsletters in the fields of drug safety and pharmacoeconomics. Outside of work, Steve enjoys spending time with his young family.

The social program will include a River Boat excursion down the Ohio River. Riverboats have been traveling on the Ohio River since the early 1800s and Cincinnati was a big Riverboat builder in the heyday of the River Boat era. We’d like to share that part of our history with you and show you a great week.

We hope to see you here in July

Mark Walsh,
Chair of the 2019 ISBS organizing committee
With applications currently being received for this year’s New Investigator Awards, and final decisions having been made on the recipients of the 2019 Hans Gros Emerging Researcher Award and Geoffrey Dyson Award, it only remains for me extend to you the invitation to propose candidates for the following awards:

- The Geoffrey Dyson Lecture (2020 Conference)
- Life Member of ISBS
- Fellow of ISBS

All of these awards are extremely prestigious, and I would ask you to think carefully about any colleagues you may thing would be deserving of these awards. Those of you who are longstanding members of the Society will understand the criteria for these awards. Those of you newer to the society may wish to familiarise yourself with the criteria required for nomination of these awards at [https://isbs.org/awards](https://isbs.org/awards) and also for information on how to apply.

Please forward any nominations you would like me to consider to n.smith@chi.ac.uk by Friday 26th April 2019. Only nominations forwarded by this date will be considered by the ISBS awards Committee for 2019.

Successful candidates will be announced at the 37th International Conference on Biomechanics in Sport in Oxford, Ohio (21-25 July 2019)
The prestigious Geoffrey Dyson Lecture is an invited presentation given by scientists who have made an outstanding contribution to the Society, and to our field. This year, the lecture will be given by Professor Michiyoshi Ae. Michi is Vice President of the University of Tsukuba. He received his B.S. in physical education from the Tokyo University of Education (1973), M.S. in health and sport sciences from the Tokyo University of Education (1975) and Ph.D. from the University of Tsukuba (1982). When he was a Ph.D. student of the University of Tsukuba, he spent one fruitful year as an exchange student at the Biomechanics Laboratory, Pennsylvania State University. He first joined the University of Tsukuba as a post-doctoral researcher and assistant in 1982 at the Sport Center. After serving as a lecturer between 1984 and 1985 at Joso Gakuin High School, Dr. Ae returned to the University of Tsukuba at the Institute of Health and Sport Sciences as an assistant professor in 1985, associate professor in 1991 and professor in 2000. While at Tsukuba, he has held various positions of Vice Provost of the School of Physical Education from 2000-2003, Chair of the Institute of Health and Sport Sciences in 2006 and Provost of the School of Health and Physical Education in 2008. He has conducted research in sports biomechanics, paying particular attention to athletics, as well as sports techniques. He has published over 300 papers and articles and participated in more than 480 presentations. Dr. Ae is a fellow of many academic societies such as the Japan Society of Biomechanics, where he is serving as president since 2009. He has been an editorial board member for Sports Biomechanics, Japan Journal of Biomechanics in Sports and Exercise, Japan Journal of Physical Education, Health and Sports Sciences and the International Journal of Sports and Health Sciences. In addition to academic societies and boards, Dr. Ae also commits substantial time to being a part of the sports world directly, as he is the head of the scientific committee of the Japan Association of Athletics Federations and a member of the scientific committee of the Japan Olympic Committee. He received research awards from the Society of Biomechanisms Japan, Japan Society of Physical Education, Health and Sport Sciences and The Japan Sports Association. He served as a leader of the Biomechanics Research Project of the 3rd and 11th World Championships in Athletics in both 1991 and 2007, and The Nagano Winter Olympic Games in 1998.

He organized ISBS 2016, Tsukuba, Japan as the chair with the help of Dr. Enomoto. After retirement from the University of Tsukuba, he has served as a professor and the chair of the graduate school in The Nippon Sport Science University in Tokyo since October, 2016. He will be a president of the organizing committee for the Olympic Scientific Conference which will be held in Yokohama 2020.
We are pleased to announce that after a very competitive round of voting, this year’s Hans Gros award goes to Laura-Anne Furlong from Loughborough University, UK with a talk entitled ‘Measuring Muscles in Motion: Implications and Applications in Applied Sports Biomechanics’

Mechanics and movement of muscles in dynamic sporting tasks are fundamental considerations in prescription and optimisation of any training, monitoring, or rehabilitation programme, with significant implications for sports equipment and assistive technology design. However, knowledge of how these factors change due to alterations in task demands, fatigue, training, or injury is still primitive relative to other areas of biomechanics. Technological advances provide an exciting opportunity to assess muscle and tendon in everyday activities, and significantly progress understanding of human movement. Basic research focused on assessment of gross soft tissue movement, muscle size, and in vivo plantarflexor muscle and Achilles tendon behaviour during stretch-shortening cycle tasks has been incorporated into research studying their implications for overall limb movement, and applied in collaborative projects focused on amputee rehabilitation and Achilles tendinopathy. Changes in lower limb inertia parameters and estimated passive energy dissipation (approx. 6 J in the shank alone) has implications for currently used inverse dynamics analysis techniques and understanding injury mechanisms. Passive dissipation potentially explains the high incidence of osteoarthritis in amputees in later life. Knowledge of muscle size, distribution, and asymmetry in ‘typical’, healthy adults and how this relates to movement is being used to optimise the amputee rehabilitation pathway, and analysis of the muscle-tendon and muscle itself is informing ongoing work related to risk factors of Achilles tendinopathy. This presentation will provide an overview of these areas of my research and how this fundamental research has significant implications for applied sports biomechanics practice.
Dear ISBS student members
It is that time of year again to promote the student mentor programme that runs alongside our annual conference. The programme presents an excellent opportunity for student members of ISBS to meet with experts in our field during dedicated mentoring sessions. Students that have taken part in the mentoring programme in previous years have found it to be a valuable part of the conference and have made some excellent contact (See October Newsletters from 2013 - 2018).

As with previous years, we will do our best to match mentors and mentees based on their research interests so that everyone can get the most out of the programme in Ohio. Mentors that take part in the programme come from a range of biomechanical backgrounds and are happy to discuss topics such as your research, career aspirations or just to share their experience with you.

How to take part:
Participation in the student mentor programme is free of charge. If you would like to be part of the programme, select the option during the on-line registration process for ISBS 2019. The deadline for registering for the mentor programme is 31st May.

Priority will be given to student members that are new to the programme but we will endeavour to include students that have taken part in previous years if possible (priority based on registration date).

I look forward to seeing you in Ohio!

Tim Exell
ISBS Vice President (Research and Projects)
Recreational alpine skiing equipment poses many balance and joint coordinative challenges due to the unique nature of the ski boot and translation of the ski across the snow. One component of the alpine industry that has been inadequately investigated is the slope (ramp angle) of the boot-binding complex. Importantly, if skier balance and coordination are affected by this unregulated component of ski-essential equipment, it may affect both performance and the prevalence of injury-risking falls. The aim of the funded project was to investigate the balance and coordinative effects of declining heel-to-toe ramp angles of the boot-binding complex.

The effects of binding ramp angles on joint coordination during a dynamic ski-booted squat task was presented at the 2018 ISBS conference in Auckland. Conclusions from this presentation were: 1) the ski boot-binding complex significantly altered the joint coordination of the lower limb joints (quantified with coupling angles) and 2) significant differences in mean coupling angles were found across ramped conditions. However, more insights into the effects of the ramp angles on the squat movement patterns can be gained from analyzing the full movement using statistical parametric mapping.

Reliability analysis of the center of pressure indices during the squat tasks suggest that they are an effective and duplicable method of investigating the effects of ski equipment. An abstract supporting this was submitted to the ISBS 2019 conference in Miami. Further analysis on the squats will investigate the relationship between joint coordination and center of pressure measurements.

The reliability of the unique balance task designed by our research team is included in the plans for future analysis of the vast amount of data obtained from the funded project. Precise movement phases will then be specified for detailed comparisons of the ramped conditions.

The ISBS Student Mini Research Grant and ISBS Internship Grant allowed our research team to duplicate testing sessions and collaborate internationally to develop two new ski task protocols. With the funding support, we were also able to create comparable laboratory set-ups and transport the ski/binding complexes overseas in order to investigate the effects of the binding ramp angles.
Stair walking contributed to 26% of self-reported falls and become the leading cause of accidental death for the elderly. The risk of falls during stair walking increases while performing cognitive task, like talking and/or reasoning.

Tai Chi (TC) is a traditional Chinese conditioning exercise. It has been proved that TC practice could improve physical and cognitive function in the elderly. There is emerging evidence to suggest that interventions combined with cognitive and physical task may improve gait and balance. So we want to know the effect of TC exercise on body stability under dual-task (DT) condition during stair ascent. At present, there is no drug therapy proven to delay preclinical cognitive deterioration[6], it would be great helpful for the elderly if some certain exercise was been proved to work. The ISBS Student Research Grant made it possible by providing funding for the experiment.

Thirty Long-term Tai Chi and no exercise (NE) elderly practitioners participated in this study. Each participant was asked to ascend the stair set-up by a step-over-step manner under two conditions. Condition 1(Single task, ST): stair ascending only, condition 2(DT): stair ascending and performing subtraction of serial sevens from a three-digit number.

Analyses of the body stability data were presented at the 2018 ISBS conference. It was concluded that Under DT condition, body stability decreased among NE participants, while TC participants remained unchang; TC participants had a better body stability during stair ascent, compared with NE participants; TC participants could percept the potential risks brought from DT, and response with safer gait strategies to increase body stability; As a physical-cognitive combined exercise, Tai Chi could improve body stability under physical-cognitive condition during stair ascent.
What an athlete directs his/her attention to when completing a motor task is a key factor in movement performance and skill execution. Within the motor control literature, this is known as Focus of Attention (FOA), and two types of FOA have been described: external FOA (i.e., directed to movement outcome) and internal FOA (i.e., focusing on movement execution). Despite a greater body of research favouring external FOA as more beneficial to skill acquisition, several authors have questioned the generalisability of these findings and argued about their applicability to any group of performers regardless of their experience, of the complexity of the task to be performed, and/or of the role of technique in outcome generation and movement success.

The clean weightlifting technique is a complex multi-joint movement that requires explosive strength, flexibility, technique and coordination. The latter two are especially relevant in the early stages of learning as they are crucial to progress with adding weights and stay away from injury. Our research aimed to assess the effects of FOA on the learning of the clean.

Young, injury-free adults naïve to the clean were recruited and undertook a 3-session training led by a certified S&C coach. After each set of lifts, participants received ad hoc feedback depending on the observed performance and the assigned group (i.e. external or internal FOA). Motion capture was used to analyse movement execution, prior to and after the intervention, as well as for retention and transfer tests a week after the completion of the training protocol. Kinematic data from the barbell and lifter were collected at the Applied Biomechanics Suite of the University of Bath, and the ISBS Internship Grant 2017 made this possible by funding subsistence for my 8-week stay.

Results showed that participants in the internal FOA group seemed to achieve greater reduction of the distance between the bar and their centre of mass throughout training. Lower limb kinematics improved across the whole sample regardless of the group. Similarly, the performance of both groups remained stable after a week (retention test) and with 5 kg added to the barbell (retention test). The skill level of the participants may explain these results as experience has been previously suggested as an FOA moderator. There seems to be insufficient evidence to advice coaches to choose one type of FOA feedback exclusively, as each approach could target different needs/stages of learning. Further analysis of these data will aim at a more comprehensive description of the effects of FOA on technique through the use of dynamical system approaches for the analysis of coordination.

Based on the work carried out to date, abstract were accepted for both ISBS and ECSS 2018 and a full journal article is under preparation for submission to Sports Biomechanics. Overall, this experience has been an invaluable contribution to my personal development as researcher within Biomechanics and it has been crucial to my successful application for my current job at the Sports Surgery Clinic.

- Adrian Rodriguez Rivadulla
This grant was used to assist in the development of a project that had been initiated as a part of a collaboration between myself, Associate Professor Drew Harrison (University of Limerick), Associate Professor Jos Vanreentghem (KU Leuven), Dr. Mark Robinson (Liverpool John Moores University) and Associate Professor Todd Pataky (Kyoto University). This project is centred on forming a better understanding of analytical methods that are currently used in human movement research and how they can be used in different experimental contexts.

Using this grant I travelled to Europe to work with these researchers collectively while at the World Congress of Biomechanics (WCB) in 2018 in Dublin. Additionally, in the lead up to this conference as a group we developed a template for an introductory workshop on functional data analysis (FDA), statistical parametric mapping (SPM) and principal components analysis (PCA) when applied to human movement data. This workshop was also trialled at the world congress (http://wcb2018.com/matlab-workshop/). This workshop is something that we will continue to develop and refine so that it can be delivered at future ISBS congresses. After WCB in Dublin, I also performed short research visits to continue work on this project with Associate Prof. Harrison and Dr. Mark Robinson in Europe/UK.

So far as a collaborative group, we have had one study published (https://www.jsams.org/article/S1440-2440(18)30091-4/abstract—see Figure 1), which directly compared the FDA, SPM and statistical non-parametric mapping (SnPM) t-tests. This study found that the FDA, SPM and SnPM statistical methods came to the same inferential conclusions using a single sample data set, despite possessing alternative approaches for representation of the raw time-series data and estimation of the null distribution. It was also suggested in this study that selection of FDA, SPM and SnPM will likely be influenced by the type of data being used and the nature of the experimental research question being explored.

Further studies are also underway as a research group including an introductory paper outlining content that was delivered at the World Congress of Biomechanics in addition to a GitHub repository of statistical information for other researchers in the biomechanics community to use, with examples from the

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**Figure 1.** FDA, SPM and SnPM t-tests applied to on-water rowing data.
The first task of ISBS’s new student representative Johannes Funken (German Sport University Cologne) was to establish a student sub-committee. The purpose of having such a sub-committee is to assist the student representative during decision-making processes by proposing ideas or opinions on a specific topic. First discussions within the group highlighted the enthusiasm of the student members and the value of hearing diverse opinions. Johannes is happy to introduce the five members of our newly established ISBS student sub-committee.

Caryn Urbanczyk is currently a PhD candidate in the Department of Bioengineering and the Department of Surgery & Cancer at Imperial College London (UK), pursuing research on shoulder and spine biomechanics during rowing, with a focus on performance and injury mechanisms. Caryn previously completed her Masters of Science in Biomedical Engineering at Duke University and her Bachelors of Science in Bioengineering at the University of California, San Diego.

Alyssa Rebensburg graduated from Northern Michigan University with a Bachelor of Science degree in Sport Science. In May 2019, she will graduate with a Master’s degree in Exercise Science, also from Northern Michigan University (USA). Alyssa’s research interests are gait, multiple sclerosis, and prosthetics. She attended and presented at her first ISBS conference in Auckland, New Zealand in 2018, and is excited to become more involved with ISBS as a part of the student sub-committee.

Megan Smidebush is currently a PhD candidate in Neuromechanics and Biomechanics at the Mississippi State University (USA). Her research interests are sports biomechanics (kinematics, kinetics, EMG, sport technology) with injury prevention and performance enhancements, specifically with baseball athletes. (Sub-interests include: football, softball, basketball, volleyball, and tennis). Megan received her Master’s degree in Kinesiology and Health Promotion from the University of Kentucky and her Bachelor’s degree in applied sciences (exercise science) from the University of Mississippi.

Angelo Macaro is currently a PhD candidate in the School of Human Movement and Nutrition Sciences at the University of Queensland and the Queensland Academy of Sport (Brisbane, AUS). His research focusses on Biomechanics of Para swimmers with cerebral palsy who have high support needs. Angelo received his Master’s degree in Health and Adapted Physical Activity from the University of Rome Foro Italico (Italy).

Josh McGeown is a PhD student at Auckland University of Technology’s Sport Performance Research Institute New Zealand (SPRINZ). Previously: HBK and Msckine (Lakehead University). Josh’s research focuses on optimizing rehabilitation and return to play strategies for athletes injured during training and competition. For his PhD project, Josh will be working with athletes who have suffered a concussion during sport, and will evaluate the effectiveness of exercise based rehabilitation techniques on a wide variety of subjective and objective outcome measures of symptom recovery.
Miami University, as said by famous poet Robert Frost, is “the most beautiful campus that ever there was”. Snuggled in small town Oxford, OH, the university is alive and bustling with undergraduate, masters and PhD students throughout the year. During the summertime campus slows down just a bit, and you are able to take full advantage of what Miami University has to offer. Specifically, our biomechanics and exercise physiology laboratories in Phillips Hall are constantly being used for research. With access to a large collegiate athlete population as well as members of the community, the labs are always busy. With recently updated motion capture systems as well as the new DARI motion system (being used in conjunction with Miami sports medicine faculty and athletes), force plates, dynamometer, EMG, and exercise physiology equipment Miami can do it all.

For this year’s conference, housing options for all conference attendees include the residence hall or college experience or the hotel experience. The residence hall option includes a double-room that has air-conditioning as well as a good WiFi connection which is within a five-minute walking distance to the conference site, what more could you ask for. As far as hotels, there are multiple options in Oxford that are within walking distance or a short car ride to the conference site. For more information about housing information please refer to https://isbs2019.org under the “Plan Your Visit” heading.

Regarding the mentoring program, Dr Tim Exell is the ISBS Vice President (Research and Projects) and leads the ISBS conference student mentor program. The program presents an excellent opportunity for student members of ISBS to meet with experts in our field during a dedicated mentoring session. Students that have taken part in the mentoring program in previous years have recommended it as a very useful and enjoyable part of ISBS.

We will do our best to match students research interests with those of their mentor. Mentors that take part in the program come from a range of biomechanical backgrounds and are happy to discuss topics such as your research, career aspirations or just to share their experience with you.

The purpose of the New Investigator Award (NIA) is to recognize new researchers and to encourage them to become productive members of ISBS by expanding the knowledge base of sports biomechanics through study and dissemination of information. Since its inception at ISBS1990 in Prague, it has been contested on an annual basis.

Candidates can enter one paper in the competition (oral or poster category), must be the first author of the paper submitted and accepted for presentation at the annual ISBS conference. Candidates must also present their paper at the conference, if selected, in dedicated oral (preliminary finals, finals [top 3]) and poster (finals) sessions. A judging panel uses evaluation templates when selecting the preliminary finalists, finalists, and winners of the competition. The winners will be announced at the closing banquet.

Student night this year will be on Monday July 22 and will begin with dinner and drinks at a local restaurant and bar in uptown Oxford. After dinner, we are free to experience night life here at Miami University in Oxford where we have plenty of options for your entertainment. With games like cornhole and pool (billiards) or live music there is always fun to be had. Please come and join me and the other students in having a great night!
Update from VP Public Relations

Laura-Anne Furlong

Society Sponsors

As always, we thank our society sponsors – Kistler and Vicon – for their ongoing support of ISBS. They provide important support to the mission of ISBS through provision of high quality products to members and financial support to the society, and we encourage you to consider these vendors when purchasing your lab equipment. Check out their websites at https://www.kistler.com/en/ and https://www.vicon.com/, and make sure to visit their stands at our upcoming conference in Ohio.

Affiliated societies

As circulated previously, we are now affiliated with both the European Society of Biomechanics and Société de Biomécanique. This is an exciting opportunity for all and we look forward to working closely with these learned societies to grow the discipline of sports biomechanics. As part of our affiliation with both societies, members of ISBS can avail of the same conference registration fees for these conferences as those of ESB and SB. Both SB 2019 (October 28-30, Poitiers, France) and ESB 2020 (July 11-15, Milan, Italy) will be hosting ISBS-supported sports biomechanics sessions in English.

This is in addition to our continued association with the International Society of Biomechanics, who we have worked with to ensure our conferences in North America this year run consecutively. This will facilitate members of both societies to attend both events in late July and August, as well as the pre-ISB conference symposia.

National Biomechanics Day 2019

Members will have received an email recently about the forthcoming National Biomechanics Day on April 10th 2019. This is the fourth running of this now international event, which aims to expand the influence and impact of biomechanics on our society by expanding awareness of biomechanics among the general public. Many events are targeted at young people, in particular teenagers, but a key aim of NBD is to engage the general public with our discipline and showcase what an exciting, relevant, scientific discipline we work in. As a result, events will take a variety of shapes and forms, from schools visiting biomechanics labs and engaging in citizen science experiments, to delivery of public lectures and online biomechanics scavenger hunts.
ISBS is a proud sponsor of this event and for the second year running we are organising our Two Minute Tweet competition. This was an excellent event ran online last year, and the videos of last year’s winners (Bjorn Bruhin, Stephanie Blair, and Cat Shin) are available to view at https://www.youtube.com/channel/UCYkzE6y_eKWa7KQOqZ6ZQUA.

Like, retweet and share widely to colleagues, friends, and family to highlight the excellent sports biomechanics research happening all around the globe. Dr Gillian Weir is at the helm yet again this year so please visit https://isbs.org/news to find out more. Deadline for entries is 2359 EST on April 4th, and the top videos will be tweeted out around the globe on the ISBS and Biomechanics Day Twitter accounts. Winners will be announced at 1700 EST on April 10th, and prizes include free society membership for best student and faculty/postdoctoral/industry submissions, plus a free membership and €100 prize for the most retweeted.

Several members have already registered events on the NBD website (http://nationalbiomechanicsday.asbweb.org/#). While many events will run on or around April 10th, activities will be hosted from March right through to May which still leaves time to get organised. Events can be as small or as large as you wish, with whatever focus and group most relevant to you and your work: the aim of the day is to expose as many people as possible all around the globe to our fantastic discipline. If you are hosting an event, please register online, and if possible send through details and images of your event to me via email (L.A.M.Furlong@lboro.ac.uk) for inclusion in our October ISBS newsletter.

For members based in Australia and New Zealand, specific dates and websites have been set up. Australian Biomechanics Day is being co-ordinated by Dr Jeroen Aeles at University of Queensland and will be held on April 4th 2019 (https://www.anzsb.asn.au/nbd), with New Zealand Biomechanics Day running on April 11th 2019 co-ordinated by Dr Geoff Handsfield at University of Auckland (https://biomechanicsday.co.nz/). Our very successful teacher’s day held at AUT Millennium last September before our main conference was organised as part of the New Zealand Biomechanics Day 2018 led by Drs Sarah Shultz and Sarah-Kate Millar.

**Youtube resources for biomechanists**

Continuing on the public engagement theme, a document collating useful Youtube resources for biomechanists and practitioners (keynote talks from a range of conferences including ISBS 2015 in Poitiers, full Two Minute Tweet videos as well as several relevant TED talks) is available for download at https://lboro.figshare.com/articles/Youtube_resources_for_biomechanists/6815618. If you have suggestions of resources for inclusion then please send me an email (L.A.M.Furlong@lboro.ac.uk) and I can update it.
Update from VP Public Relations

Sports Biomechanics social media

Finally, Sports Biomechanics (the official journal of ISBS) now has an active Twitter account with all new research being posted as it is accepted and published. I encourage you all to visit https://twitter.com/sportsbiomechj?lang=en if you have not already, and follow, like and retweet the research being posted. The dissemination of our activities to the wider community is a key part of our society ethos, to bridge the gap between research and practice, so taking a few minutes to browse and share can help us to achieve this goal and grow our discipline further.

Looking forward to seeing everyone in Ohio,

Laura-Anne

Proceedings

Read the papers for all our awardees on the ISBS open access proceedings archives.

Papers from 1983-2016 are available here.

Papers from 2017 are available at our new archive here.
Dear members,

The ISBS annual membership fee is collected for each calendar year. Please log yourself in on our homepage: www.isbs.org and renew for 1 or 3 years. As last year the registration for the ISBS conference 2019 uses our membership database. Therefore we kindly like to invite all of you to check and update your affiliation and postal address.

All ongoing members have access to the journal „Sports Biomechanics“ and the data for your access will be automatically transfer to Taylor and Francis. Please be aware that access to the journal can not be provided if there are any restrictions in place towards the member's home country. We apologize for any inconvenience.

If you have any questions or issues, please feel free to ask!

Stay strong, Silvio sl@ethz.ch

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