Message from the President

Duane Knudson

Dear ISBS Members,

Greetings ISBS colleagues. I am truly humbled to be elected by the ISBS membership to take on the role of president of this great society. I am fortunate to be following the wise leadership of Past-President Dr. Young-Hoo Kwon and joining a diverse and outstanding group ISBS officers and board members. My pledge to the ISBS membership is to work closely with your elected leaders to continue with our current initiatives and look for additional ways we can support our members and our mission to promote the study and application of biomechanics in sports. The board is busy with ongoing activities and new initiatives related to updating policy to include voting rights on the board for the student representative, auditing and data security, standards for validation of wearable technology, coordinating with other biomechanics and coaching organizations to bridge-the-gap, and women in sports biomechanics.

I and the society are grateful to Dr. Mark Walsh and his Miami University team for hosting an outstanding 37th ISBS Conference in Oxford, Ohio. The keynote speakers and applied sessions were truly outstanding. The modern conference facilities, beautiful campus and community also contributed to a pleasant and stimulating conference experience. Thank you to all who attended and contributed to the conference, especially the scientific committee and VP Publications Sarah Breen for the timely review of the papers and publication of the proceedings. If you missed the conference you can catch up on the latest sports biomechanics research at our proceedings archive. ISBS is particularly grateful to ongoing society sponsors (Kistler and Vicon) and many other sponsors supporting and exhibiting the latest technology at the conference. We are all looking forward to the 38th ISBS conference in Liverpool.
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Duane Knudson

At the conference I asked members to step-up for the society four ways: Invite, share, encourage, and contribute. Every ISBS member should reach out an invite one non-member colleague to join ISBS and attend the Liverpool conference. When you do that, remember to share your excitement for and the friendly spirit of our society. Please encourage an ISBS member you have not seen at a recent conference to come back to active participation. Please also personally commit to contribute to ISBS in 2020. ISBS can truly help others experience the joy sport, top level competition, recovery from injury, and pain free movement. We can only achieve our mission by working together and stepping up to serve the society. There are many ways that ISBS members can serve through leadership, service on committees, reviewing journal and proceeding articles, and participating in annual conferences. We must continue our efforts to grow our membership, society sponsor, participation in nominations, elections, and the diversity of our leaders and the regions of the world they represent. Please continue to support, attend, and nominate yourself or interested colleagues for leadership positions in the society.

Please let me know if you have any ideas in advancing ISBS. I welcome a more clear and complete picture of the aspirations of the membership for ISBS and sports biomechanics.

Duane Knudson
President of the ISBS
From The ORGANIZING COMMITTEE: THANK YOU ALL FOR ATTENDING THIS YEAR’S CONFERENCE! (in order):

William Berg, Eric Slattery, Dean Smith, Meredith Stutz and Mark Walsh,

It was our pleasure to host this year’s ISBS conference and to welcome scientists from 28 countries to share research ideas and bridge the gap between research and practice at the 35th Annual Conference of the International Society of Biomechanics in Sports. Together with our exhibitors, 220 people enriched this conference with their innovative ideas and interesting research topics.

The scientific program offered eight key note lectures started off by the outstanding Geoffrey Dyson lecture of Michiyoshi Aye and followed by ground breaking key notes by Jacqueline Alderson, Toni Arndt, Veronique Feipel, Walter Herzog, Karl Newell and Laura-Anne Furlong.

We would also like to acknowledge the Applied Session Leaders: Young-Hoo Kwon - Golf Swing Analysis and Feedback, Gen Williams, Gareth Irwin & Karl Newell - The Dynamics of Coordination, Control and Skill in Sport: Example of the Gymnastics Longswing,
Preview of ISBS 2019 Miami University Oxford Ohio

Vanessa Morales & Gregory Hollandsworth - Evaluating and Treating Seven Primal Movements, Eric Hodgson - Demonstration of the HIVE (Huge Immersive Virtual Environment), Glenn Fleisig - Biomechanical Analysis of Baseball Pitching. And thanks to Dr Philip Graham-Smith for leading the pre-conference symposium for Valid Performance.

Also, special thanks goes to all the reviewers of the Scientific Committee for spending their valuable time to ensure the scientific quality of the conference and the chairpersons for their commitment and their energy to guide the sessions and to initiate interesting discussions.

And of course none of this would be possible without the generous support of our exhibitors and sponsors: AMTI, XSENS, NORAXON, BTS BIOENGINEERING, C-MOTION, QUALISYS, ECTOSCAN 3D, DELSYS, OPTITRACK, VICON, VALD, BERTEC and MOTION ANALYSIS.

This conference was able to offer 21 students travel grants of about 500 Euros each. On the social side of things many of you started the morning listening to a range of music played by the pulley tower. Student night was hosted at ‘Left Field Tavern’.

The success of the conferences of the ISBS is based on the exchange of research but also on the social interaction and networking of participants from all over the globe. The social program which gave the participants not only the chance to get closer to each other but also to discover the rich history and cultural features of the city of Oxford and our rich history back in the days of River Boats.

Thank you all again for a great week in July 2019. We look forward to seeing everyone in Liverpool in 2020!
The following awards were presented at the 2019 Conference in Oxford, Ohio:

**Geoffrey Dyson Award**

The Geoffrey Dyson Award and Keynote Presentation is the most prestigious award offered by ISBS. It is awarded to an individual who through his/her professional career has embodied and carried out the primary purpose of ISBS; to bridge the gap between researchers and practitioners.

The award is named after one of the founding fathers of Sports Biomechanics, Geoffrey Dyson. Geoffrey Dyson had a long and strong academic and coaching career. He was the coach of the British Olympic Team in 1952, 1956, and 1960. In 1962, he first published his book on the Mechanics of Athletics. He was a speaker for the International Olympic Academy and conducted athletic courses in 14 countries. According to John Disley, one of Geoffrey Dyson's favourite pupils, “he devoted his life to making coaching a science and to exposing the charlatan whose only effective advice was do it again, but harder”.

The 2019 recipient was Professor Michiyoshi Ae (right) from Nippon Sport Science University. Professor Ae delivered an engaging and thought-provoking keynote presentation entitled The Next Steps for Expanding and Deepening Sport Biomechanics. This included some sprint biomechanics data which had only previously been published in Japanese and was of particular interest for those of us with a keen interest in the biomechanics of track sprinting, and was the focus of much subsequent discussion.
ISBS Awards 2019 (cont.)

Neil Bezodis

It was announced at the closing ceremony of the 2019 Conference that the 2020 Geoffrey Dyson Award Winner will be Professor David Lloyd from Griffith University, Australia. We all look forward to hearing Professor Lloyd’s Keynote Presentation in Liverpool next July.

A special membership category that is reserved for members who have made outstanding contributions to ISBS. The work of the member should have enabled ISBS to further develop and thrive. This work is typically not academic (research-related) and is therefore not covered by other ISBS awards, and a Life Member has all of the privileges of membership but does not pay annual membership fees.

There were no Life Memberships awarded in 2019.

Fellow

The Fellow award of ISBS recognises substantial scholarly and service contributions to ISBS and Sports Biomechanics. Three Fellowships were awarded this year:

Dr Laura-Anne Furlong, Loughborough University, UK

Dr Daniel C Herman, University of Florida, USA

Dr Mark Walsh, Miami University, USA
ISBS Awards 2019 (cont.)

Neil Bezodis

**Hans Gros Emerging Researcher Award**

The Hans Gros Emerging Researcher Award recognizes excellence in early career research. This prestigious award is given annually to an individual who has excelled in their early research career (2-5 years post PhD) and has embodied the ISBS philosophy of applied science and ‘bridging the gap’ between research and application in practice. The Hans Gros Emerging Researcher Award was first awarded in Taipei, Taiwan as part of the 31st ISBS conference. The winner is invited to present a lecture on his/her research at that year’s ISBS conference.

The award was named to commemorate Hans Gros for his contribution to ISBS. Hans Gros was a founding member of ISBS and was President in 1998-1999. Hans established the first ISBS website and was awarded Life Membership in 2001 in San Francisco. He was a faculty member at the University of Stuttgart in Germany and taught biomechanics, skiing, and track and field. His research interests focused on sports equipment design for gymnastics, archery, and the biomechanics of track and field.

**Dr Laura-Anne Furlong**
Loughborough University, UK

This year’s recipient was Dr Laura-Anne Furlong (above) from Loughborough University, UK, who delivered an excellent presentation which gave a clear and detailed overview of her work covering a range of issues all related to the measurement of muscles in motion.
ISBS Awards 2019 (cont.)

Neil Bezodis

New Investigator Award (NIA)

The purpose of the NIA is to recognise new researchers in Sports Biomechanics and to encourage them to become productive members of ISBS by expanding the base of knowledge of Sports Biomechanics through study and dissemination of information. The NIA was first awarded in Prague, Czechoslovakia as part of the 8th Symposium of ISBS. Since its inception, it has been contested on an annual basis as part of the conference.

The winner of this year’s oral NIA competition was Josef Viellehner (left) from the German Sport University, Cologne for his presentation entitled *Road Bike Damping: Comfort or Performance Related?* In second place was Marion Mundt (RWTH Aachen University, Germany) and in third place was Christopher Papic (University of Sydney, Australia).

The winner of this year’s poster NIA competition was Hiroyuki Sakata (right) from Tokyo University of Science, Japan for his presentation entitled *Braking and Propulsive Impulses Across a Range of Running Speeds in Unilateral Transfemoral Amputees*. In second place was Giorgos Krikelis (Loughborough University, UK) and in third place was Garrett Duffin (Lakeland University, USA).

As part of ISBS’s new policies, all four of our award winners (Geoffrey Dyson award, Hans Gros Emerging Researcher Award, New Investigator Award Oral and Poster) have been invited to submit papers to the Society’s journal, *Sports Biomechanics*. As always, the next conference will come around very quickly so please keep your eyes peeled for e-mail announcements, particularly in relation to the Hans Gros Emerging Researcher Award and the New Investigator Award which are the first to close (on the 31st January and the initial conference paper submission deadline, respectively).
The ISBS Student Mentor Program was held for the 8th time at the annual ISBS conference in Ohio and organised by Dr Tim Exell (former VP Research and Projects). 24 (undergraduate, masters, PhD) students from 10 different countries were matched with 22 mentors from around the world. Mentees were matched with mentors based on interest and experience prior to the start of the conference, and met for breakfast on the first day of the conference where there was the opportunity to discuss research and career paths. As there was a near 1-1 ratio between mentors and mentees, students were able to receive lots of individualised advice.

Thomas Dupré (German Sport University Cologne, Institute of Biomechanics and Orthopaedics) participated in the Student Mentor Programme for the first time and shared these experiences:

Although this year’s ISBS at Miami University in Oxford was already my fourth ISBS conference, this was the first time that I attended the student mentor program. Looking back, I regret joining the program so late, as the mentoring program is the society’s expression of one of its key idea: The connection between the leading, more senior scientists and the next generation, the PhD students.

Nearing the end of my PhD, I wanted to use the opportunity to talk about career options after I have finished my PhD. As I am not planning to stay in academics, I was worried, that the mentoring program might not yield a lot of useful information, as the mentors are, by definition, mostly academics. Nevertheless, my mentor was very helpful in this regard and provided me with a variety of helpful tips regarding the final steps of my PhD and the time afterwards.

Furthermore, my experience with my mentor and the mentoring program in general seems to reflect the experience that other students have had. I do not recall, having heard that other students have been unsatisfied with the program. On the contrary: Everyone who attends seems to be delighted and most people use the opportunity to start building their network. In conclusion, I would recommend the student mentoring program to every student attending ISBS no matter how far they are in their PhD.
Rhiannon Campbell (Australian Institute of Sport / University of Canberra) participated in the Student Mentor Programme for the second time in Ohio and shared these experiences:

I have been lucky enough to attend the last two ISBS conferences during the course of my PhD. Prior to attending my first ISBS, it was suggested that I attend the student mentor breakfast as it is a great opportunity to engage with world leaders working within similar a research area. Although I was nervous, I signed up and I am so glad that I did, because it was a very rewarding and enjoyable experience. Both years I have been well-matched with mentors who were very open to discuss their research, their career journey, as well as how they balance their personal and professional lives. As I am entering into this profession, it was very insightful to hear not only the stories of success, but also the challenges that they have encountered along the way. Both of my mentors were also exceptional at introducing me to other researchers and students working in similar areas, allowing me to further widen my professional network and spark some very thought-provoking discussions. As I am approaching the end of my PhD, I also found the breakfast was a great place to ask for advice on applying for jobs and how to progress my career after finishing a PhD. Overall, the student breakfast is a fantastic opportunity for students to engage with some of the best researchers within their research area in a casual and friendly environment. I have found the student mentor breakfast extremely beneficial and would highly recommend these sessions to all students attending future ISBS conferences.

Thanks to all of the students for taking the opportunity to meet with mentors, and to the mentors who volunteered their time and experience. Also thank you to the conference committee for including this breakfast into the conference program and providing such a wonderful venue for it.

Details regarding the Student Mentor Programme at ISBS 2020 in Liverpool will be available in the March/April 2020 newsletter and on the conference website. I hope to see many of you there!

Look out for the ‘Tips for attending the ISBS conference as a student’ that will be shared before Liverpool ISBS2020! How else can ISBS support students? Let us know your thoughts! Contact Johannes Funken (ISBS Student Representative) or myself (vpresearch-projects@isbs.org).

I have taken over as Vice President of Research and Projects from Tim after the conference in Ohio. I would like to thank him on behalf of all the mentors and mentees for organising the programme and ensuring that it remains a successful and important part of the ISBS conference.

Ina Janssen
ISBS Vice President (Research and Projects)
We had a high quality of application for the student and full-member research grants. Thank you to all that applied. Following the review process the following grant awardees were announced at the conference in Ohio. Congratulations to all of the awardees, I wish you the best of luck with your research and look forward to hearing about your findings as you present at ISBS the coming years.

### Student Research Grant (2 recipients):

**Saša Čigoja**, University of Calgary, Canada

“The relationship between the activity of intrinsic foot muscles, longitudinal arch stiffness, and midsole bending stiffness.”

**Manuela Trejo**, Sheffield Hallam University, UK

“Effect of traction in ankle non-contact injury mechanisms.”

### Internship Grant (2 recipients):

**Gerda Strutzenberger**, University of Salzburg, Austria

“The differences between three main prosthetic feet designs for transtibial amputees during various gait task”

**Steffi Colyer**, University of Bath, UK

“The interaction between maturation, athletic development, and injury risk”

### Mobility Grant (1 recipient):

**Hannah Wyatt**, Auckland University of Technology, NZ

“Whole-body kinematics, muscle activity and lower-limb accelerations during track turns on flat and banked curve tracks”
In June and July of 2018, I had the incredible opportunity to spend 6 weeks in Portugal at the University of Porto where I was warmly welcomed by Professor João Paulo Vilas-Boas, Associate Professor Ricardo Fernandes and their team at LABIOMEP. The objective of my visit was to organise, coordinate, and lead a study that would provide data for the final portion of my doctoral thesis titled Movement Characteristics of Front Crawl Swimming at Sprint Pace and Middle-Distance Pace: Establishing Demands on the Torso Muscle.

The purpose of my thesis was to establish the demands on the torso muscles during front crawl swimming using 3D kinematics and torso muscle activity patterns. Results from my thesis were used to develop guidelines for ways to improve the specificity of dry-land strength training for swimmers. Findings from the first part of my thesis suggested that torso muscle demands may be higher at faster swimming speeds (Andersen et al., 2019. JSCR, ahead of print). Furthermore, the torso muscles may play a role in reducing rotation about the longitudinal axis as it is transferred from the lower limbs to the upper limbs (Andersen et al., 2018. ISBS Proceedings Archive, 36(1), Article 223: https://commons.nmu.edu/isbs/vol36/iss1/223/). The study conducted at the University of Porto was designed to investigate the differences in torso muscle activity between sprint and middle-distance (400m) pace front crawl and to explore the associations between torso muscle activity and rotation about the body’s longitudinal axis. Findings from this study would be used to improve understanding of the demands on the torso muscles in front crawl swimming.

The first 4 weeks of my visit were spent pilot testing and creating the scaffolding for a highly coordinated effort from the team of 20 researchers I lead, all while learning to communicate in Portuguese. I was able to use my previous knowledge of EMG on land to learn how to safely and reliably record EMG data underwater, which involved innovative techniques developed by LABIOMEP that I modified to suit the needs of my study. I also had the opportunity to extend my skills for using optoelectric motion capture systems from Vicon and Motion Analysis to include Qualisys – currently, the only 3D optoelectric motion capture system in the world designed with specific hardware and software for an aquatic environment.

3D motion capture and torso muscle EMG data were collected from competitive swimmers during sprint and middle-distance pace front crawl in the 25m indoor swimming pool devoted to research at the University of Porto. Rotation of the thorax with respect to the pelvis about the body’s longitudinal axis, or ‘torso twist’, was not associated torso muscle activity at either swimming space. The findings suggest that the torso muscles may not play a large role in producing torso twist; rather, these muscles may be more important for maintaining trunk posture and producing spine stability to assist the limbs in generating motion.

The initial target was to collect data from 15 participants swimming front crawl at two different paces. Thanks to detailed planning and preparation, our research team recorded data from 22 participants that, in addition to the front crawl testing, included trials of butterfly, breaststroke, backstroke, and water polo skills. I presented a portion of the findings from the front crawl trials in a conference paper at ISBS 2019 (Andersen et al., 2019. ISBS Proceedings Archive, 37(1), Article 83: https://commons.nmu.edu/isbs/vol37/iss1/83/). The data presented at ISBS 2019, which also fuelled the final study of my thesis, comprise just a portion of the complete dataset that resulted from this study. Future projects have been planned to investigate other aspects of human movement in swimming using the rest of the dataset.

Due to the labour-intensive nature of 3D motion capture and EMG data acquisition – not to mention the difficulties of conducting this type of research in a swimming pool – many projects of this kind typically involve 10-15 participants. We pushed the standards for biomechanics research in swimming with this study while creating new protocols and perfecting old ones to measure aspects of swimming that will drive expectations skyward for sports science. I am grateful beyond words to have had the pleasure of leading such a fantastic team at the University of Porto and I am extremely honoured that ISBS awarded me the Student Research Grant to help support my research and this humbling experience.
The anterior cruciate ligament (ACL) injuries remain at a high rate and result in devastating consequences to individuals’ health and sports participation. Stiff landings and single-leg landings, often characterized by decreased knee and hip flexion and increased landing forces and knee torques, are associated with increased ACL loading and ACL injury risk. Understanding the factors that may result in single-leg landings and still landings may help athletes better prepare for these high-risk situations.

Previous studies have focused on the mechanisms of non-contact ACL injuries, as most ACL injuries occur without external objects/players contacting the knee joint. Various factors, such as self-initiated mid-flight trunk motion and previous injuries, may result in asymmetric landing patterns associated with increased ACL loading. However, indirect contact to the body parts other than the knee joint has been commonly observed in ACL injury events. Understanding the effect of mid-flight perturbation on landing mechanics may provide information for ACL injury mechanism associated with mid-flight external perturbation and help develop effective injury prevention programs.

Therefore, the purpose of this study was to quantify the effect of mid-flight external perturbation to the trunk on landing mechanics. Young recreational athletes completed jump-landing tasks with or without a perturbation force. The perturbation force was connected by a cable to the participant below the armpit or above the pelvis and was applied laterally after the participant passed a trigger in mid-flight. External weights corresponded to 7.5% or 15% of the participant’s body weight. There were five jump-landing conditions: Unweighted, Pelvis 7.5%, Pelvis 15%, Shoulder 7.5%, and Shoulder 15%. Landing kinematics was tracked using eight high-speed cameras. Two force plates were used to capture bilateral ground reactions forces.

Preliminary results showed that the leg ipsilateral to the perturbation typically demonstrated greater peak vertical ground reaction force during landing. The Shoulder 15% condition resulted in the greatest peak vertical ground reaction forces for the knee ipsilateral to the perturbation force direction. As such, being perturbed in mid-flight by an external force acting away from the whole-body center of mass may result in an asymmetrical landing pattern associated with increased loading of the ACL for the ipsilateral limb.

The ISBS Internship Grant 2018 made it possible for Yu Song to travel from Beijing Sport University to the University of Wyoming to assist in data collection and analyses. Yu Song has demonstrated excellent learning abilities and work ethics during her internship, which has led to her admission and research assistantship to the doctoral program in Biomedical Sciences at the University of Wyoming to keep working with Dr. Boyi Dai. Yu Song will continue this line of research, mid-flight perturbation and landing mechanics, for her doctoral dissertation. Preliminary results of this study will be submitted to the ISBS 2020 annual meeting. The ISBS Internship offers such unique opportunities for students to enjoy invaluable research experience and for professors to recruit excellent future students.
This grant was used to travel to Liverpool for two months from February to March with the aim to establish a new protocol for testing the already detected movement strategies in fast cutting maneuvers and the adaptability of an athlete in game situations. The project was a collaboration between Dr. Mark Robinson of Liverpool John Moores University and myself, German Sport University Cologne. The idea of this project was to pilot test different manipulation tasks during the runup of cutting maneuvers in order to see whether this approach is applicable to any participant.

Performing fast cutting maneuvers is one of the key abilities of sports games participants. At the same time, non-contact anterior cruciate ligament injuries – as a result of these maneuvers - account for ~20% of the knee injuries among team sports players. Numerous studies investigated risk factors, besides others: gender, skill-level and biomechanical risk factors. During my PhD project, I focused on the relationship between subject specific movement execution and joint loading and detected three main strategies.

However, it is not clear how adaptable these individuals are to changes in their strategy. This is important because in actual game scenarios and individual may be unable to use their preferred strategy due to constraints of the opponent, time or performance. We therefore devised a protocol that firstly established an individual’s preferred strategy then secondly required them to change their preferred strategy and we monitored their ability to do this. We defined manipulation scenarios that only affected the approach or penultimate ground contacts, therefore changing the posture of the athlete during maneuver initiation.
CALL FOR STUDENT AND FULL MEMBER GRANTS

ISBS is pleased to announce that the Student Research Grant, Internship Grant and the Mobility Grant will all be available in 2020! These grants have been developed to support the research activities of full ISBS members, in particular those that are in the early stages of their career or are returning from a career break. Brief information relating to all three grants are provided over the next two pages.

Full details of the grants and application processes are available under the ‘Grants’ tab of the website: www.isbs.org/grants. Please note that the deadline for all applications is April 26 2020.

The Student Research Grant

The Student Research Grant is open to final year undergraduate students and postgraduate students and is available to fund biomechanics research projects in an environment that provides strong mentorship from an established researcher. The grant is designed to assist the student in the early stages of their professional development to encourage the pursuit of biomechanics research.

Funds Available

ISBS funds up to two awards per year, each award may be up to €1000 and is available to fund research for up to one year in duration.

Applications in one or more of the following areas are encouraged:

• Sports / Exercise biomechanics • Paediatric/ gerontology exercise biomechanics
• Development of biomechanical methods/ instrumentation
• Fundamental movement biomechanics • Sports engineering
• Biomechanics of injury prevention and rehabilitation in sport / exercise

Eligibility

The applicant must be supervised by an established researcher who is a current ISBS member. The student’s supervisor is expected to administer the funding.

Students must be enrolled as a final year undergraduate or a graduate student at the time of application.
The Internship Grant

The Internship Grant will provide funds to pay an intern student to assist with the research of a full ISBS member. The purposes of the internship are to: 1) support full ISBS members (particularly early career researchers in their research activities by providing student internship support and 2) foster the intern student’s interest in biomechanics research and provide them with an opportunity to become familiar with research techniques and collect data under the guidance of an established researcher.

Funds Available / Allowable Costs

Up to two grants are available. The amount paid will be €250 per week for students living away from home or €150 per week for students living at home for 4-8 weeks and is administered by the Host Institution. Other research expenses are not payable.

Duration / Eligibility

Projects should be achievable in 4-8 weeks – students should be working on a specific project and details of what is intended to be achieved within the time frame is required at application. Students should currently be enrolled as an undergraduate or taught masters student (PhD students are not eligible as intern students).

The Researcher Mobility Grant

The Researcher Mobility Grant will provide funds to support full ISBS members (1 ECR and 1 developing researcher) to travel to an established ISBS member’s or applied organisation’s lab. The purpose is to allow the applicant to learn new techniques, collect data, develop research skills, bridge the gap between research and practice and build collaborative sports biomechanics networks. Visits may be to a research lab or applied organisation that utilises sports biomechanics (e.g. National Governing Body or footwear/ equipment manufacturer).

Funds Available / Allowable Costs

Up to €2000 each to support travel costs and accommodation/ subsistence. Full anticipated costings and details of other current financial support to be provided with application.

Duration / Eligibility

Visits are for a duration of 4-8 weeks.

ECRs should be less than 3 years post-PhD graduation (not including verified absence due to sickness, maternity, paternity). Developing Researcher, >3 years post-completion of PhD.

Applicants must be current members of ISBS in good standing and with a minimum of one year’s membership.
Caryn Urbanczyk, Imperial College London, UK

"The ISBS 2019 conference hosted by Miami University was a picture perfect, low stress network driven affair. As my first foray to this conference, I found a tight knit community among the members, but that still felt open and welcoming. The conference certainly put sharing of ideas, constructive feedback, and developing collaboration at the forefront. A welcome contrast to very large conferences, I look forward to ISBS 2020 close to home in Liverpool."

Gabriela Beinhauerová, University of Ostrava, CZE

"ISBS in Oxford was my first conference. I was excited about the great organization, wonderful place and lots of nice and smart people. It was an honor to talk with experienced researchers. Special thanks to the student mentor program, it was very helpful to young researchers."

O. A., US

"As a coach and researcher of the sport of Athletics, the 2019 ISBS conference was a great experience. It was my first ISBS conference and proved to be a home fit for my research. I found the conference to be welcoming, not just research, but to what research brings, the innovation of ideas that encourage challenges and change. It celebrated the backgrounds, experience, and purpose of those that have chosen service to the sports world.

From attendees to host staff to keynote speakers, I had the pleasure to engage with many people, feeling I was in the company of those also excited about my work. To have received a chance to speak to those that understood the true history and foundation of ISBS was humbling. It's a conference where one gains support to see how best to contribute to the field of sports biomechanics. I'm appreciative of the conference experience and look forward to the next."

Josef Viellehner, German Sport University Cologne, GER

I have very good memories about the 2019 ISBS. In addition to an outstanding organization and a very friendly atmosphere, the active exchange with senior researchers is a central point for us young researchers. The applied sessions gave me some new input and good ideas for my future research. At this point I would also like to thank the society for its support with student travel grants. I look forward very much to the 2020 conference in Liverpool and hope to meet many familiar faces there.
This year we held our second 2-minute tweet competition for National Biomechanics Day. This competition is to showcase the outstanding biomechanics activities and research that our members are doing around the world and publicize them over Twitter and YouTube. These videos have been viewed over 2000 times. You can find all submissions on our YouTube Channel here: [https://www.youtube.com/channel/UCYkzE6y_eKWa7KQOqZ6ZQUA](https://www.youtube.com/channel/UCYkzE6y_eKWa7KQOqZ6ZQUA)

This years winners were:

**Best submission led by a student:** Jule & Simon from CAU Motion Lab, Kiel University in Germany

*Image of Jule & Simon from CAU Motion Lab, Kiel University in Germany*

**Best submission by a faculty member, postdoc, or applied sporting body:** Goh Wan Xiu & team from Singapore Sports Institute

*Image of Goh Wan Xiu & team from Singapore Sports Institute*

**Most Retweeted:** Rachel Teater, Kirsty McDonald & Emily Matijevich center for rehabilitation engineering and assistive technology (CREATE) at Venderbilt University in the USA.

*Image of Rachel Teater, Kirsty McDonald & Emily Matijevich center for rehabilitation engineering and assistive technology (CREATE) at Venderbilt University in the USA*

Get ready to submit something for next year and contribute to the great festivities of National Biomechanics Day April 8, 2020!
**Update from Secretary General**

**Peter Sinclair**

Hi everyone. I’ve been given the privilege of serving as the new Secretary General for ISBS and thought I’d introduce myself to those of you I don’t already know. I’ve been a member of ISBS since my first conference in Limerick in 2009 and have just attended my eighth conference in Oxford, Ohio. I’ve been working at the University of Sydney since 1990, serving as Head of Exercise and Sport Science for the past three years, but will be passing that baton over at the end of this year; so it seemed a good time to increase my contribution to ISBS.

I’d particularly like to thank my predecessor, Randy Jenson from Northern Michigan University, for his stellar service as Secretary General from 2011 to 2019. His wisdom and steadying hand have been of immeasurable benefit to the society and I hope, with time, that I can provide similar service (although I don’t promise to stay on for eight years). I’m sure we’ll continue to see Randy for some time to come, but he’s going to take a well-earned rest from the demands of society administration for a while.

I’d like to take this opportunity to remind you all about the importance of retaining membership of the society. ISBS performs a lot of valuable services; providing a forum where we can all meet to exchange ideas and, particularly, by supporting the development of early career researchers. The cost to you for society Membership is relatively modest but it is essential for our continued operation. In 2018/19, for example, the society contributed €5000 Euros for awards, €6000 Euros for student travel grants and €10000 Euros for other project grants delivered back to members. Without continued funding, the society cannot continue to provide this level of support to your members.

I’d like to encourage you all to keep your membership current, especially in years when you’re unable to attend the annual conference. There’s an obvious advantage to membership when you’re attending because of the discounted registration fee, but please consider that your contribution is just as important to the society in other years. If you have colleagues who’ve let their membership lapse, please encourage them to retain their professional association with ISBS.

![Figure 1: Your Secretary General enjoying some post-ISBS relaxation in North Carolina](image1)

**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](#).
Update from VP Public Relations, year end 2019

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/](https://www.kistler.com/en/) and [https://www.vicon.com/](https://www.vicon.com/), and make sure to visit their stands at our next year’s conference in Liverpool.

**Affiliated societies**

This summer we finalised our affiliation with the Arab Society of Biomechanics and Motor Behaviour. This is an exciting opportunity where we look forward to working closely with this society to help grow the discipline of sports biomechanics in the region.

This is in addition to our continued association with the International Society of Biomechanics, Société de Biomécanique, and European Society of Biomechanics, whom we are supporting next year in the organisation of the sports track at their annual conference which is being hosted in the beautiful city of Milan, Italy by Politecnico di Milano. For any ISBS members who may be considering travelling to Europe early, you can avail of the same registration rate as that for ESB members. Abstract submission deadline is January 31st 2020 and further details are available at: [https://esbiomech.org/conference/esb2020/](https://esbiomech.org/conference/esb2020/)

**Biomechanics Day 2019**

ISBS members around the globe were involved in a variety of Biomechanics Day events this year, running from March through to May. Biomechanics Day expanded to even more countries this year, with the first events running in Ireland (led by Evan Crotty at University of Limerick) and South Africa (Dr Helen Bayne at the University of Pretoria).

In the UK, next year’s conference hosts, Liverpool John Moores University, held a large visit day for local schools to their labs and over 100 teenagers took over the biomechanics labs at Loughborough University. This is in addition to multiple other events held in Asia, Australia, Europe and the US. This was the fourth running of this now international event, which aims to expand the influence and impact of biomechanics on our society by improving awareness of biomechanics among the general public. While many events target young people, in particular teenagers, a key aim of NBD is to engage the general public with our discipline and showcase what an exciting and relevant scientific
Update from VP Public Relations contin...

Laura Anne Furlong

discipline we work in. As a result, events 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. This 2019 Journal of Biomechanics article may help to give a flavour of how different countries around the globe approached the organisation and delivery of their day [https://www.sciencedirect.com/science/article/abs/pii/S0021929019302106](https://www.sciencedirect.com/science/article/abs/pii/S0021929019302106) and give some inspiration for the organisation of your own event.

ISBS is a proud sponsor of the Two Minute Tweet event organised by Dr Gillian Weir at University of Massachusetts Amherst. We will be supporting this event yet again in 2020 so please do submit an entry, the deadline will be late March – these videos gain significant attention on social media so are an excellent way of promoting your ongoing research.

The date is already pencilled in for NBD 2020 as April 8th, but as always, events will run from March right through to summer of 2020. We encourage you to register your event at [http://nationalbiomechanicsday.asbweb.org/](http://nationalbiomechanicsday.asbweb.org/) so an ongoing record of participation can be kept. While many events will run on or around April 8th, activities will be hosted right through springtime, which leaves time to get planning and get organised. Events can be as small or as large as you wish, with whatever focus and group you wish: 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 please send through details and images of your event to me via email (L.A.M.Furlong@lboro.ac.uk) for inclusion in next year’s ISBS newsletter.

**Youtube resources for biomechanists**

Continuing on the public engagement theme, a document collating 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](https://lboro.figshare.com/articles/Youtube_resources_for_biomechanists/6815618). If you have any other suggestions of resources for inclusion then please send me an email and I can update it.

**Sports Biomechanics social media**

For any member utilising social media, Sports Biomechanics (the official journal of ISBS) has an active Twitter account with all new research being posted as it is accepted and published. ISBS member Dr Stuart MacErlain-Naylor at the University of Suffolk, UK has now taken over the role of Social Media Editor and has several exciting changes planned for the next 12 months. I encourage you all to visit [https://twitter.com/sportsbiomechj?lang=en](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 to achieve this goal and grow our discipline further.

Wishing everyone a happy, healthy and productive 2020,

Laura-Anne
Registration for NBD 2020 is open: Click Here
Women in Sports Biomechanics

In the interest of a diverse and inclusive society, ISBS is committed to supporting women in sports biomechanics. Our aims are to:

- Support women members with carer responsibilities [e.g. children, elderly parent(s)] stay connected to the society; and
- Support women members in science and academia

How can we achieve this? Some potential ways are by:

- Supporting women with carer responsibilities to attend the conference;
- Supporting mothers while being at the conference (nursing rooms etc);
- Supporting women with research opportunities;
- How else? Let us know! Short term and long term goals welcomed.

Women in Sports Biomechanics (WSB) mentor program

The aim of the WSB mentor program is to provide a platform for ISBS female members to discuss their research, career or assist with networking opportunities. This program runs throughout the year and independently to the ISBS conference. If you are interested in joining the WSB mentor program, send an email to vpresearch-projects@isbs.org.

Women’s event at ISBS2020

We are pleased that, for the first time at an ISBS Conference, an event dedicated to mentoring and supporting Women in Sports Biomechanics will be organised at ISBS2020. Stay tuned to the ISBS2020 website and newsletter for further information.
Dear Members,
The ISBS annual membership fee is collected for each calendar year. Already now, it can be renewed for next year. Please log yourself in on our homepage: www.isbs.org and renew for 1 or 3 years. We kindly like to invite all of you to check and update your affiliation and postal address as it will be also used for the conference 2020 in Liverpool.

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.

Stay strong, Silvio sl@ethz.ch

1st call for hosting the 41st Conference (2023)

1st call for hosting the 41st Conference (2023) of the International Society of Biomechanics in Sports

The annual ISBS conference is a key-event for the international scientific exchange and networking within the field of sports biomechanics. At this time of the year, we are making the first call to ISBS members interested in hosting this attractive event in the year 2023.

This first call is open to interested ISBS members in the preferred region of Europe / Africa, with the deadline 31st of March, 2020.

If no proposals are received from the preferred region, a 2nd call for hosting will be made on the 1st of April 2020, opening the invitation to all global regions. The deadline for submission will then be 1st of June 2020.

Preparation of bid:
If you are interested in hosting the 41st ISBS conference in 2023, please prepare your bid according to the ‘Policy Manual for Planning and Preparation of the ISBS Annual Conference, which can be found at the ISBS homepage: https://isbs.org/images/files/VP_Conferences_approved_2018.pdf. This document contains all relevant information to guide the preparation of a proposal to host the conference and information to help prepare and organise the ISBS Conference.

Submission of bid:
Those wishing to submit a bid to host the conference in 2023 should submit the electronic file of the application to the VP of Conferences (vpconferences@isbs.org) by the 31st of March, 2020.

Please don’t hesitate to contact me to indicate your interest and if any further information is needed. I look forward to receiving your bid.

Kind regards

Tim Exell
ISBS Vice President (Conferences and Meetings)
ISBS Officers & Directors

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Past President:
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## ISBS Officers & Directors

### ISBS Directors

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### Johannes Funken
German Sport University, Cologne, Germany