

Title

Translating our research for public consumption: National Biomechanics Day and Beyond

Description

Within the biomechanics community, the common perspective of biomechanics is that of a healthy, vibrant, and ubiquitous science. But while biomechanists are well aware of its importance and contributions, biomechanics itself has yet to emerge as a widely known and fully appreciated scientific endeavour. As academics, our role is to translate biomechanics into something the general public and our various stakeholders can understand and appreciate. It has been specifically suggested that a younger audience must be targeted to create the greatest impact when advancing our research field.

Biomechanics is a multidisciplinary science, which incorporates a broad swath of STEM disciplines (e.g. physics, biology, chemistry, mathematics) in order to understand human and animal movement and the physical biology of living tissues. Yet, biomechanics is seldom taught before the university-level. National Biomechanics Day (NBD; <http://nationalbiomechanicsday.asbweb.org>) is a movement recently started in the United States that aims to expose high school students to the science and current research in biomechanics. In 2016, NBD engaged over 2,000 US high school students and teachers in a variety of hands-on experiential learning activities centred around biomechanics research. The high success of its inaugural year has seen the concept of NBD adopted by researchers in various countries, with a similar mission underscoring every effort: to celebrate the importance of biomechanics and encourage its application within secondary school science curricula. The long-term goal of NBD is to grow the field of biomechanics so as to increase its valuable contributions to society.

The purpose of this workshop is to increase awareness of NBD within the larger biomechanics community, and present potential ways to facilitate greater academic engagement with local, regional, national, and international communities.

The objectives of this workshop will be to:

1. Describe the original development and implementation of National Biomechanics Day.
2. Discuss strategic plans for implementing National Biomechanics Day in countries outside of the US.
3. Identify other ways to engage with the general public, and youth in particular
4. Explore the best ways to translate biomechanics research to industry and clinical sectors

To address objective one, Professor Paul DeVita will provide a background on the creation of National Biomechanics Day. Paul was President of the American Society of Biomechanics at the time of its inception, and was a founder and primary driver of the event. Given his strong connection to the project, Paul will be able to provide invaluable insight into the importance of NBD and its mission. He will speak about the challenges and triumphs of NBD and lessons that were learned in first and second years.

To address objective two, Dr Sarah Shultz will discuss different strategies for adopting NBD in other countries. Sarah is currently leading the planning committee for the implementation of New Zealand's NBD in 2017 and is well-placed to describe how the concept of NBD can be used internationally. Strategies will include the national approach that New Zealand is using, as well as localised and regional efforts being conducted in other countries, such as Brazil, England, and Canada.

To address objective three, Dr Laura-Anne Furlong will talk about creating opportunities outside of NBD to engage with both youth and adults. Laura-Anne is the recent winner of a successful UK competition (I'm a Scientist Get Me Out of Here), which seeks to increase public engagement with science and engineering. She will speak about her success with this program, as well as other programmes and activities that can be implemented within local communities.

To address objective four, Associate Professor Roozbeh Naemi will expound on ways to engage with industry and clinical sectors. Roozbeh has been involved in several European Union grants, with his primary responsibility to transfer biomechanical knowledge to enterprise and clinical stakeholders. He will speak on the best approaches for involving industry and creating collaborations between academic and external project partners.

The scope of this workshop is as varied as the science of biomechanics itself. By focusing on how to relay our information, rather than on specific biomechanics content, we hope to interest a large portion of conference attendees, across every theme. However, the workshop could be included within the *experimental technologies/instrumentation* theme, with other potential fits within *clinical biomechanics*, *musculoskeletal biomechanics*, *gait and posture*, *sports biomechanics and technology*, and *biomechanics of women* themes.

Program

Chair: Paul DeVita¹

00:00-00:25 *Start them young: The development of National Biomechanics Day for today's youth*

Paul DeVita¹

The purpose of this talk is to highlight the inception of National Biomechanics Day. The challenges and triumphs, as well as lessons learned, will be identified. Audience members will be able to take part in some of the NBD activities that were used in different labs.

00:25-00:50 *Thinking globally: How could National Biomechanics Day work in your country?*

Sarah Shultz²

The purpose of this talk is to outline various ways that researchers can get involved with NBD outside of the US. Demonstrations will be given to highlight how social media can connect NBD around the world, and technology can be implemented to reach more rural regions.

00:50-01:15 *What about the other 364 days? How to reach young minds outside of National Biomechanics Day*

Laura-Anne Furlong³

The purpose of this talk is to identify other strategies for community engagement. Demonstrations will provide examples for improving online engagement with young students (e.g. live online chats, online forums), as well as solutions for longer term engagement.

01:15-01:40 *What other groups need a biomechanics translator?*

Roosbeh Naemi⁴

The purpose of this talk is to identify how biomechanics can be translated to specific sectors of the community (i.e. industry, clinical). Examples will be given of industry engagement with NBD, as well as advice on how to effectively communicate the impact of biomechanics with external stakeholders.

01:40-02:00 *Q & A with the panel*

Although the audience will have an opportunity to engage with the panel throughout the workshop, this time slot will allow for even further follow-up questions to be asked of the panel at large.

Paul DeVita¹, Sarah Shultz², Laura-Anne Furlong³, Roosbeh Naemi⁴

List of Speakers

¹ Paul DeVita, PhD. Leroy T Walker Distinguished Professor, Department of Kinesiology, 332 Ward Sports Medicine Building, College of Health and Human Performance; East Carolina University; Greenville, NC 27858 (USA). devitap@ecu.edu

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³ Laura-Anne Furlong, PhD. Vice-Chancellor's Lecturer, School of Sport, Exercise and Health Sciences, Loughborough University, Ashby Road, Loughborough, Leicestershire LE11 3TU (England). .a.m.furlong@lboro.ac.uk

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