Introduction to the European Society of Biomechanics

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The European Society of Biomechanics (ESB; esbiomech.org) was founded at a meeting of 20 scientists from 11 countries in Brussels on May 21, 1976. Biomechanics was defined as “the study of forces acting on and generated within a body and of the effects of these forces on the tissues, fluids or materials used for diagnosis, treatment or research purposes.” The primary goal of the ESB was formulated as “to encourage, foster, promote and develop research, progress and information concerning the science of Biomechanics.”

Those present at this first meeting were selected to be the founding members, and a first council was formed under the presidency of Dr. John Scales (University of London, UK). Statutes and bylaws were drafted under the directorship of the first secretary-general, Dr. Franz Burny (Université Libre de Bruxelles, Belgium). The statutes were approved under French law and registered in Strasbourg. A first scientific meeting and general assembly of the membership was held in Brussels in 1978. From 20 members in 1976, the society grew to about 100 in 1985. Just before the end of 2014, the ESB reached the symbolic target of one thousand members (in good standing). In 2019, the ESB has 1360 members (30% female). The first official meeting of the ESB, i.e., the ESB conference, was held in Brussels (Belgium) in 1978 and gathered 107 registered researchers. The ESB conference was then repeated biannually until 2012, and once a year from 2012 onwards. Along the years, the meetings of the Society have been traveling around Europe: Belgium, France, The Netherlands, Switzerland, Germany, the UK, Ireland, Italy, Poland, Portugal, Greece, Czech Republic, Spain, and

Austria, and the number of participants grew substantially to around 700. In 2014, the ESB conference was combined for the first time with the World Congress of Biomechanics in Boston, USA.

The current council is formed by María Angeles Pérez (President, University of Zaragoza, Spain), Luca Cristofolini (Vice President, University of Bologna, Italy), Markus Heller (Secretary-General, University of Southampton, UK), Harry van Lenthe (Treasurer, KU Leuven – University of Leuven, Belgium), Sara Checa (Scientific Communications Chair, Julius Wolff Institute, Germany), David Mitton (Meetings Committee Chair, University of Lyon, France), Mark Thompson (Meeting WebPortal Committee Chair, University of Oxford, UK); Jérôme Noailly (Membership and External Affairs Committee Chair, Universitat Pompeu Fabra, Spain); Dieter Pahr (Publication Committee Chair, Vienna University of Technology and Karl Landsteiner University of Health Sciences, Austria), and Enrico Dall’Ara (Education and Student Committee Chair, University of Sheffield, UK).

The main goals of the ESB are to promote excellence in biomechanics research, to foster integration of clinical and basic science, and to facilitate the translation of such science into healthcare technologies and clinical practice. In particular, the ESB supports its mission by recognition of outstanding members with prestigious awards given at the ESB Congress. The Huiskes Medal for Biomechanics is an Award launched in 2012 by the ESB to honor the lifetime of service that Prof. Huiskes (one of our founding fathers) gave to biomechanics as a whole, and to the ESB in particular. This award is given to senior researchers who have contributed significantly to biomechanics throughout their careers. Prof. Georg Bergmann (Julius Wolff Institute, Charité – Universitätsmedizin Berlin, Germany), Prof. John Currey (University of York, UK), Prof. Roger Kamm (Massachusetts Institute of Technology, USA), Prof. Lutz Claes (University of Ulm, Germany), and Prof. Ralph Müller (ETH Zürich, Switzerland) have been the awardees so far. Another prestigious award is the S.M. Perren Research Award (firstly presented at the 2002 ESB Congress

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in Wrocław, Poland). This biannual award is given to the first author of the best scientific paper submitted based on original and previously unpublished research. The ESB Clinical Biomechanics Award was established by ESB with the purpose of fostering the application of biomechanics to clinically oriented problems. At every congress, we also have an ESB Poster Award with the purpose of supporting the quality and visibility of the scientific discussions during the poster presentations at the meeting.

Importantly our future is in the youngest members, and the ESB actively supports and recognizes the efforts of early-career researchers through the Best Doctoral Thesis in Biomechanics, the ESB Student Award, the ESB Mobility Award, and around 20 travel awards. The Best Doctoral Thesis in Biomechanics recognizes the development of an outstanding doctoral final thesis that has contributed to theoretical and/or applied advancements in biomechanics. The ESB Student Award was instituted by Professor Marie-Christine Ho Ba Tho (Université de Technologie de Compiègne, France) at the 1998 Congress in Toulouse, France, with the purpose of honoring excellence in biomechanics already at a relatively young age. The purpose of the travel awards is to financially help young researchers to participate in the ESB Congress. Finally, the ESB Mobility Award aims to provide ESB members with financial assistance to carry out collaborative research in a foreign country as part of their PhD or early postdoctoral research. We believe that this instrument is a cornerstone to sustainably strengthen the international links among junior and senior ESB members, and the ESB community at large. If you would like to have more information, you may check our web page (esbiomech.org/esb-awards/).

Every year more and more young female scientists apply and win these awards. The ESB has been open to and supportive of promoting the career of women more and more in this field.

The Nanoengineering for Mechanobiology symposium, around which this special issue of *Biophysical Reviews* is based, featured a number of prominent ESB members among the speakers, e.g., Yannis Missirlis (University of Patras, Greece). The main goal of this symposium was sharing ideas on new and upcoming technologies and applications towards a deeper understanding of how the mechanical environment is shaping the function of cells and tissues. One of our founding members, Rik Huiskes (Eindhoven University of Technology, The Netherlands), already stated that the central paradigm of skeletal mechanobiology is that mechanical forces modulate morphological and structural fitness of the skeletal tissues—bone, cartilage, ligament, and tendon (Van der Meulen and Huiskes 2002). New developments in cellular, molecular, and computational technologies will bring important benefits to nanoengineering and other related fields and help or contribute to the prognosis and treatment of different and harmful pathologies.

Reference

Van der Meulen MC, Huiskes R (2002) Why mechanobiology? A survey article. *J Biomech* 35(4):401–414

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