

Final Report

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Society of Biomechanics**

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1. EXECUTIVE SUMMARY

The International Society of Biomechanics (ISB) was founded in 1973 to promote the study of all areas of biomechanics at the international level, although special emphasis is given to the biomechanics of Human Movement. The Society promotes the dissemination of knowledge in the fields of anatomy, physiology, orthopedics, rehabilitation medicine, sport medicine, ergonomics, and electro-physiology. The unifying philosophy is that principles of mechanics are key to our understanding of musculoskeletal injuries, occupational health and human performance. The 2005 meeting of the International Society of Biomechanics was the first time in over a decade that the ISB had held its meeting in the USA.

There were three main objectives of ISB2005. First, up-to-date breakthroughs in the field of biomechanics were critically reviewed. These areas included (i) protective measures to reduce or prevent impact injuries, (ii) problems of diabetic neuropathy, and (iii) functional tissue engineering. Second, through the use of conference tutorials, student breakfasts and workshops, considerable efforts were directed towards student educational needs. Third, efforts were established to lay the foundation for continued exchange of information and ideas among researchers in biomechanics. As an example of this, an initiative to set up an orthopedic biomechanics laboratory in Tanzania was conceived of, and implemented, following the 2005 ISB Conference.

2. CONFERENCE OVERVIEW

From July 31st through August 5th, 2005, the international biomechanics community convened in Cleveland for the combined XXth ISB and 29th ASB Congresses. Brian Davis, Ph.D., and Ton van den Bogert, Ph.D., were the conference co-chairs. Approximately 1150 participants from 38 different countries attended. The conference covered biomechanical breakthroughs in a variety of fields including: Sport, Locomotion, Muscle/Motor Control, Physical Therapy/Rehabilitation, Cardiovascular and Biofluid Mechanics, Bio-robotics, Occupational Biomechanics, and Tissue and Cellular Engineering. These topics -- combined with workshops on pressure measurement technologies, tutorials geared towards graduate students, breakfast for students and women in science -- resulted in this conference being the largest held by the societies. The Cleveland Clinic, Case Western Reserve University and Cleveland State University (Table 1) sponsored the six-day conference, held at CSU

Table 1. Host Institutions

The Cleveland Clinic Foundation

Department of Biomedical Engineering
The Orthopaedic Research Center

Case Western Reserve

Department of Biomedical Engineering
Department of Mechanical Engineering
Department of Veterans Affairs
Orthopaedic Research Laboratory

Cleveland State University

Department of Health Sciences

Of those attending the combined ISB and ASB conferences, 262 participants completed evaluation forms. Questions covered key issues such as: Venue facilities, Quality of keynotes, Value of meeting in terms of improving biomechanics knowledge and some congress-specific events.

About two-thirds thought the venue was either excellent or good (Figure 1a). Those who thought otherwise either commented on (i) the fact that Waetjen auditorium was about a 5-minute walk from the lecture rooms in the Main Classroom building and/or (ii) the fact that the student dormitory rooms were poorly prepared prior to the conference. The keynote speakers (Table 2) were highly regarded (Figure 1b) with 94% either indicating “excellent” or “good” for these talks.



Figure 1. Breakdown of responses for (a) Venue Facilities and (b) Keynote Quality.

Table 2. Keynote Presentations

Speaker	Notes
Kai-Nan An, Ph.D	Borelli Award Winner
Rik Huiskes, Ph.D	Muybridge Award Winner
Mont Hubbard, Ph.D	Jim Hay Award Winner
Mary Rodgers, Ph.D	ISB President’s Lecture
Bruce Latimer, Ph.D	Wartenweiler Address
Don Chaffin, Ph.D	Covered by NIH grant
Julie Steele, Ph.D	
Masahiro Kurosaka, Ph.D	
Martyn Shorten, Ph.D	
James Collins, Ph.D	
Andre Seyfarth, Ph.D	

While keynote lectures were important, the rest of the meeting was where many new findings in biomechanics were shared. What was encouraging was the number of people (>95%) who indicated the congress added to their knowledge of biomechanics (Figure 2).

Congress added to my understanding of biomechanics

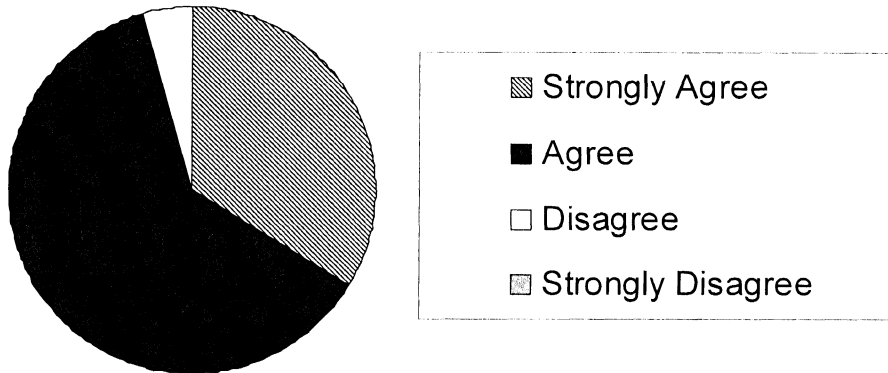


Figure 2. Over 95% of the respondents increased their knowledge of biomechanics.

One of the issues that the conference organizers paid special attention to, concerned the scientific program. We had a number of decisions to make concerning the number of parallel sessions, and number of poster sessions. In the end, about 600 posters were included in the program—a number that happens to coincide with the overall opinion of those people who completed the survey (Figure 3a). Another issue that required some pre-congress planning, related to maximizing traffic flow through the exhibit area. For anyone planning a future conference, respondents seemed to think that the registration desk and poster areas should be close to exhibitors (Figure 3b), whereas the internet café and lunch areas were considered less important.

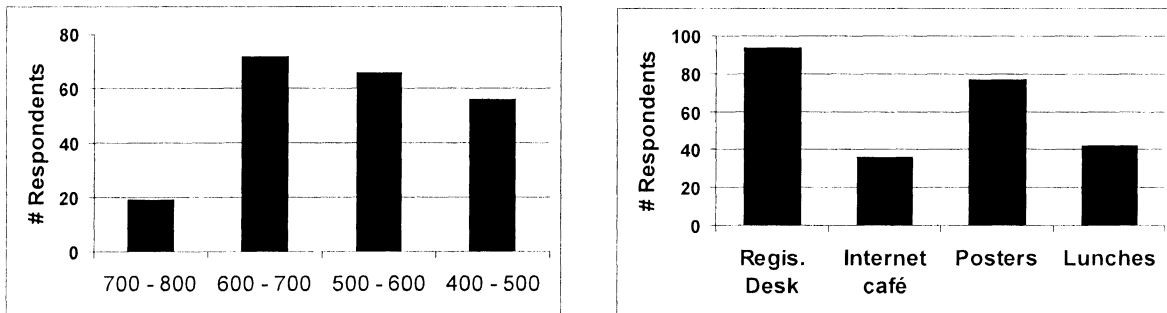


Figure 3. Respondents had varying opinions to (a) “For a conference with 1000 presentations, how many should be posters?”, and (b) Which should be located closest to the exhibit hall, (i) Registration Desk, (ii) Internet Café, (iii) Posters, or (iv) Lunches?”

Finally, respondents were asked to comment on both the student lunch and the “Women-in-Science” breakfast. Results for these questions are shown below (Figure 4). Note that the numbers of people responding to these portions of the survey were relatively few; 29 and 27

responses respectively. However, in both cases, most of those attending the meetings rated them as either good or excellent.

ASB Student Lunch

Women-in Science Breakfast

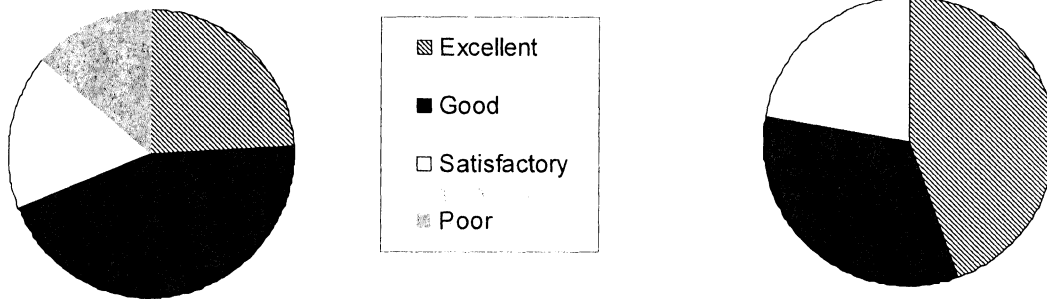


Figure 4. Responses for lunch and breakfast gatherings.

3. CONCLUSIONS

The \$7,500 funding we received from the NIH permitted the conference organizers to (i) cover the costs of Dr. Don Chaffin’s keynote address on “Biomechanical Analyses of Occupational High Exertion Tasks”, (ii) offer reduced rates for students, and (iii) partially cover the costs of the Congress Coordinator. When coupled with Cleveland’s central location and the fact that the American Society of Biomechanics agreed to join their annual meeting with the XXth ISB Congress, the result was the largest ISB and/or ASB meeting ever held by these societies.