



International Society of Biomechanics Newsletter

ISB Officers

PRESIDENT

Prof. Dr. Günter Rau
Helmholtz-Institut für
Biomedizinische Technik
Pauweisstraße 20
D-52074 Aachen
GERMANY
Tel: (0241) 80-7111
Fax: (0241) 8888-442
E-mail: rau@hia.rwth-aachen.de

PAST-PRESIDENT

Dr. Peter R. Cavanagh
The Centre for Locomotion Studies
Room 10, I.M. Building
Pennsylvania State University
University Park, Pennsylvania
U.S.A. 16802
Tel: + 1 814 865-1972
Fax: + 1 814 863-4755
E-Mail: pr@psu.edu

SECRETARY-GENERAL

Dr. Brian L. Davis
Department of Biomedical Engineering
The Lerner Research Institute
The Cleveland Clinic Foundation
9500 Euclid Avenue
Tel: +1 216 444 - 1055
Fax: +1 216 444 - 9198
E-mail: davis@bme.ri.ccf.org

TREASURER

Dr. Graeme A. Wood
Department of Human Movement
The University of Western Australia
Nedlands, WA 6907
AUSTRALIA
Tel: + 61 9 380-2361
Fax: + 61 9 380-1039
E-Mail: gwood@uniwa.uwa.edu.au

NEWSLETTER EDITOR

Dr. Mark D. Grabiner
Department of Biomedical Engineering, Wb3
The Lerner Research Institute
The Cleveland Clinic
Cleveland, Ohio, 44106
Tel: + 1 216 444 7276
Fax: +1 216 444 9198
E-Mail: grabiner@bme.ri.ccf.org

ISSUE Number 67
August-September, 1997

TABLE OF CONTENTS

From the President	2
From the President-Elect	3
From the Past-President	3
From the Editor	4
From the Treasurer	5
From the ISB Council:	
Savio Woo, Chair, ISB Awards Committee	5
Job Market	6
Upcoming Meetings, Etc.	9
Places to Go	11
On Stress	11
Water-based activities to reduce stress	12
So what's the problem here	12
A New Journal	12
You just might be a graduate student if...	12
Things you learn in graduate school	13
From an ISB Affiliate Society	13
The Thesis Exchange	14
Directory of ISB Council Members	15
ISB Membership News	16

AFFILIATE SOCIETIES OF ISB:

American Society of Biomechanics; British Association of Sport and Exercise Sciences; Bulgarian Society of Biomechanics; Canadian Society of Biomechanics/Société canadienne de biomécanique; Chinese Society of Sports Biomechanics; Comisia de Biomecanica Inginerie si Informatica (Romania); Czech Society of Biomechanics; Formosan Society of Biomechanics; Japanese Society of Biomechanics; Korean Society of Sport Biomechanics; Polish Society of Biomechanics; Russian Society of Biomechanics; Société de biomécanique (France).

From the President- Guenter Rau

Serving the ISB and its membership in many ways is considered as the main task of the president. I wish to thank the members for transferring this task to me which makes me feel very privileged. The ISB is presently a very active scientific society in a continuously progressing phase: From qualification and analysis of human movement to better understanding of the underlying phenomena reaching from neuromuscular control even to biochemical and biophysical mechanisms on the cellular or even subcellular level. One of my intentions is to support this multidisciplinary approach as well as the further development and application of the "higher level" biomechanics of human movement.

The excellent scientific and organisational shape of ISB is in large part the merit of my predecessors and the council. I may assign many new initiatives to Past President Peter Cavanagh who was so active that he will keep me and the council very busy during the upcoming years. Personally, and on behalf of all ISB members, I wish to thank Peter Cavanagh. Also Professor Ron Zernicke had contributed essentially to make ISB flourishing. He leaves the council after 6 years serving as President Elect, President and Past President, and we wish to give him our high appreciation for his effective leadership. Also we are very grateful to other retiring Council members for their efforts and contributions to ISB: Drs. Sandra Olney, Alf Thorstenson, Savio Woo, Fred Yeadon and Mont Hubbard.

The elections for offices and council for the next two years were announced during the congress, and the result is a very promising group. Professor Kit Vaughan from South Africa will serve as our new President Elect, and in addition we welcome as new members of the Executive Council Drs. Gisela Sjøgaard from Denmark, Mary Rodgers from USA, Kejo Häkkinen from Finland, Peter Brüggemann from Germany and Leendert Blankevoort from the Netherlands.

Other members of the council and offices in continuation for 1997-1999 are Drs Graeme Wood (Treasurer) from Australia, Brian Davis (Secretary General) from the USA, Mark Grabiner (Newsletter Editor) from the USA, Ton van den Bogert from Canada, Bruce Elliot from Australia, and Toshio Moritani from Japan.

We are lucky that Graeme Wood is ready to continue his service for ISB - he is said to be "the glue" of the society!

Looking back, the XVI th ISB Congress on Biomechanics organised in Tokyo, Japan and held August 25-29, 1997 was a very successful highlight in many respects. It was chaired by Professors Mitsumasa Miyashita and Tetsuo Fukanaga and organised by our colleagues Dr. Senshi Fukashiro, Dr. Yuichi Hirano and the staff of the Department of Sports Sciences. The preceding Symposia were very well attended and appreciated. A number of important keynotes supplied the scientific backbone while about 600 participants presented and discussed oral and poster contributions in detail. We wish to thank our Japanese colleagues for their outstanding hospitality.

During the Congress the invitation to the next ISB Congress in Calgary 1999 has been presented. Drs. Benno Nigg and Ron Zernicke are already advanced in planning and organising this event being supported by Drs. Walter Herzog and Ton van den Bogert. The impressive list of keynote speakers and the site of the congress close to the Human Performance Lab give a very exciting perspective, and many new impulses to the scientific progress in biomechanics can be expected.

In the previous issue of the Newsletter, Peter Cavanagh outlined a series of well defined initiatives that in principle have been approved by the membership assembly of ISB. They will be taken to action in the future. Also the relations to other societies shall be improved in those fields which show overlap of interests.

Among others, the Council will have its 1998 meeting in conjunction with the ISEK Conference June 27-30, 1998 in Montreal. Relationships to other societies as ISBS is slowly developing, but on the other hand a new contact to IEEE-EMBS might help to reinforce engineering input to ISB. This would be a component that could contribute to make novel technological developments available to biomechanic research and applications. In this context I wish also on behalf of the membership to express our gratitude to our industrial members and sponsors for their continuous interest and support. Perhaps they will appreciate this last mentioned initiative in particular.

The scientific quality in biomechanics research has been awarded in various ways, and there will be a more detailed report in the Newsletter elsewhere. Also the students initiative as suggested by Peter Cavanagh will be linked to quality and corresponding award actions. This will help to involve student members in ISB and to make their activities and contributions to the society more visible as in the past.

Finally, I wish to encourage you as ISB member to keep close contact with me and your council members. We need your input, your ideas, suggestions and advice. It will be my privilege to work with you and to further develop the ISB as an interdisciplinary field - let us make it happen.

From the President-Elect- Kit Vaughan

First, may I say "thank you" to the membership of ISB who have placed their confidence in me by electing me to this position. I am honoured to be the person who will lead the society into the 21st century and I want to assure you that I will work hard on your behalf, promoting our field of biomechanics around the world. Over the past six years, I have been privileged to serve under three outstanding Presidents -- Aurelio Cappozzo, Ron Zernicke, and Peter Cavanagh -- who have been important role models to me, demonstrating how it is possible to be both a successful administrator and still make significant contributions as a scientist. I look forward to working with our current President Guenter Rau as we take biomechanics to new heights over the next two years.

One of my first responsibilities as President-Elect is to solicit applications to host the XVIIIth biannual congress of the International Society of Biomechanics, to be held in the year 2001. If there are any groups who would like to take on this vitally important responsibility, then I would urge you to contact me as soon as possible (my e-mail and regular mail addresses are on the front page of this newsletter). I will be happy to supply you with a set of guidelines plus the relevant codes for ISB congress organizers. Your submissions should be in to me by March 1998 in time for me to distribute your proposal to the other council members prior to our business meeting which will be held in Montreal in late June. If possible, it would be helpful for a member of the bid committee to present the proposal to council at that meeting which will be held in conjunction with the congress of ISEK

(International Society of Electrophysiology and Kinesiology). I look forward to those submissions!

Past-President- Peter Cavanagh

Readers may recall my President's column in the June 1997 ISB Newsletter which discussed some of the ways in which the International Society of Biomechanics could better serve its student members. I am delighted to announce that the Executive Council approved a bold new program featuring five initiatives for our student members at its meeting in Japan at the end of August 1997.

The first important change is that we intend to propose a modification of the Constitution of the Society in order to include a student representative on the Executive Council. This must be done by mail (or Email) ballot of members and will be packaged together with other constitutional amendments planned for a vote in the New Year. The change is more than symbolic. I believe that it represents the real desire of the Council to allow the student voice to be heard in future decisions.

Next, we intend to exploit our international membership in order to develop a directory of opportunities for student members who wish to spend short periods of study abroad. This is not intended to facilitate formal degree programs, but rather to provide a list of laboratories where students who wish to gain research experience in a particular area would be welcomed. We hope that this will provide the basis for many opportunities for intellectual and personal growth.

The final three initiatives all involve grants.
The Matching Dissertation Grant Program: Each year there will be at least 5 competitive grants of \$2000 made for doctoral dissertation research. A condition will be that the applicant will have a commitment from her/his institution or another source to provide a further matching \$2,000.
The International Travel Grant Program: In order to allow student members to travel abroad to experience science in other cultures, we will begin by offering each year 7 grants of \$2,000 for travel which is related to biomechanics research. A report on the accomplishments during the trip will be expected by the Executive Council.
The Congress Travel Grant Program: ISB Congresses provide a wonderful opportunity for exchange of information and for meeting other scientists who can be influential in the development

new directions. By virtue of the need to move the Congresses between different continents, it is often very difficult for students to afford to travel to the Congresses or to pay the registration fee if they can travel. Starting with the 1999 ISB Congress in Calgary, we will offer 10 travel grants of \$1000 to student members who will be presenting their research results at ISB Congresses. We will also encourage the organizers of future Congresses to provide reduced registration fees for the winners of these awards.

All of these grant initiatives will be highly competitive - we are looking to encourage quality and we will expect that the recipients will fulfill the obligations which will come with the grants. Over the next 5 years, as the programs grow, we anticipate providing financial support to more than 90 student members. This program, therefore, offers the possibility of having a major impact on the next generation of biomechanists.

With this move, the Society is making a major financial commitment to student members: almost \$175,000 over the next five years. This is the single largest expenditure that the Society has ever made and the Council is prepared to accept the challenge of seeking sponsors to help offset the cost. In addition, by unanimous vote of the membership assembled in Tokyo, the annual dues of the Society will be increased from \$US35 to \$US50 to help finance the program. Student membership dues will remain at \$US15 per year.

The implementation of the Student Member Initiative is now in the hands of Council Members Mary Rodgers from the USA (mroders@physio.ab.umd.edu) and Keijo Hakkinen from Finland (Hakkinen@maila.jyv.fi). In the near future, they will be announcing the guidelines and deadlines for these grant programs on BIOMCH-L.

Watch for the announcement and encourage all student members who you know to participate. The ISB is proud to be in a position where it can help its most important constituents.

From the Editor-Mark Grabiner

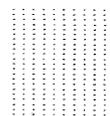
The ISB Congress is now a bright memory. Not even the trip home from Kobe to Cleveland that packaged a bullet train, an express train, two aircraft, a circa World War II Cleveland taxi within a ghoulish sake hangover could diminish the wonderful time in Japan shared with old and new colleagues from around the world. Certainly one of

the many highlights of the Congress occurred at the banquet. This year's banquet marked the return of Dr. Richard Nelson as the Master of Ceremonies of the very prestigious and solemn D&D Awards. Dick has agreed (again) to submit a Newsletter column about current and historical perspectives on the D&D's. We will all be looking forward to that.

While at Tokyo, I accepted the invitation from ISB President, Guenter Rau, to assume another two year term as Newsletter Editor. Naturally, as a newly elected member of the ISB Executive Council, I felt compelled to object, but alas, it was too late. I am pleased then to announce that my first act as re-appointed Newsletter Editor was to almost entirely miss the August-September issue. I was never a fan of the expression, "Better late than never" but it suddenly seems relevant.

I now regularly receive Newsletter items from the membership...at least I assume they are from the membership. So far, Maarten Bobbert has continued the stream of information from Europe and to him I want to express my gratitude, again. *Thank you, Maarten.* To expand global participation in the Newsletter, I am now accepting applications for a Newsletter Correspondent from Asia. Perhaps one of the Tokyo ISB Congress organizers who now have so much more free time on their hands would volunteer. Better yet, perhaps surreptitiously volunteering a future / past colleague.. If interested, please apply to my Email address.

Lastly, during the ISB General Meeting an AV problem was encountered when Graeme Wood was presenting the Treasurer's Report. The problem was that the special feature on the overhead projector that would magnify the images by 10^5 was not functioning. Because I took copious notes during the meeting I am able to keep my promise to former ISB President John Paul. Below, is what I was able to make out from row 3 of the auditorium.



For those of you who enjoy large matrices, the actual numbers can be found in Graeme Wood's section that should be around here somewhere.

**From the ISB Council: Savio Woo, PhD
Chair: ISB Awards Committee**

Five ISB awards were made at last summer's Congress in Tokyo. The **Clinical Biomechanics Award** was given to Dr. Robert Norman, University of Waterloo. Dr. Norman presented the paper titled "*Prolonged biomechanical load on spinal tissues is a risk factor for occupational low back pain*". Drs. E. Morag and P. Cavanagh, from Penn State University, won the Novel Award for their work titled "*Structural and functional factors that determine peak plantar pressure under the foot during walking*". The Promising Young Scientist Award was given to Dr. A. Courtney, from the Cleveland Clinic Foundation who presented a talk on "*Sample sizes, statistical power and the significance of importance*". The final judging for the Young Investigator Awards was made at the Congress. For the Poster Presentation, the award winner was M. K. Rand, Arizona State University and Barrow Neurological Institute, who presented *Adaptive changes in responses to repeated locomotor perturbations*. Congratulations to all of the award winners and their collaborators!

From the ISB Treasurer - Graeme A. Wood

I am pleased to be able to report that the Society's financial position as at June 30, 1997 (the end of the Australian financial year) was very sound, as can be seen in the balance sheet below. The Society's funds are located in two bank accounts; one in Australia, the other in the USA. In order to present a unified account of the Society's finances the monies held in our USA bank account have been converted to Australian dollar equivalents. As mentioned by Peter Cavanagh in his report (pages 3&4, this issue), it has been decided that the annual membership dues will be raised in order to be able to underwrite, in part, the Student Initiatives Program (SIP). Journal subscription fees will also rise in 1998, but that is entirely as a result of increased prices passed on to us by the publishers. The budget that was accepted by the General Assembly in Tokyo in August proposed that increased Membership and Sponsorship revenue provide the residue of the funds required to underwrite the SIP. Your help in achieving these goals would be greatly appreciated. *Are your students and colleagues ISB members?*

**THE INTERNATIONAL SOCIETY OF BIOMECHANICS
FINANCIAL REPORT FOR YEAR ENDING JUNE 30, 1997**

BALANCE SHEET

NB All amounts are in Australian Dollars (1.35 \$AUS = 1\$US)

● ASSETS	
Australian Operating Accounts	
Checking	35,896.47
Congress Loans	8,955.95
Educational Support	1,957.60
Publishers' Hold Account	964.30
USA Sponsorship Account	47,533.79
TOTAL ASSETS	95,308.11
● LIABILITIES AND EQUITY	
<i>Liabilities</i>	
TOTAL LIABILITIES	0.00
<i>Equity</i>	
Total Revenue to July 1991	13,083.83
Profit (Loss) 1991/1992	5,637.69
Profit (Loss) 1992/1993	23,118.05
Profit (Loss) 1993/1994	5,494.83
Profit (Loss) 1994/1995	19,842.05
Profit (Loss) 1995/1996	26,532.98
Non-Accounted for Funds	0.00
<i>plus</i> REVENUE 1996/1997	91,832.33
<i>less</i> EXPENSES 1996/1997	90,233.65
TOTAL EQUITY	95,308.11
TOTAL LIABILITIES + EQUITY	95,308.11

AUDITORS' REPORT

We have examined the Society's financial records for the period July 1, 1995 through June 30, 1997. The total assets as at June 30, 1995, together with the detailed income and expenditure for the 1995/96 and 1996/97 financial years agree with current balances shown in the Society's bank accounts.

The profit and loss statements for the 1995/96 and 1996/97 periods were examined and found to be consistent with the budgets approved at the General Assembly in Jyvaskyla in July, 1995. Clarification was sought on some matters and the explanations given by the Treasurer were to our satisfaction.

Signed:



Wilhelm Ludwig Bauer



Walter Herzog

Date: August 26, 1997

Job Market

Faculty Positions

- The School of Kinesiology at the University of Illinois at Chicago is seeking a tenured or tenure track faculty member in the area of nerve/muscle biology. Successful applicants will be those who have demonstrated an ability to carry out independent research and work in a team environment. Send a curriculum vitae, a brief statement of research interests, selected reprints, and names of three references to W. Palmer, PhD, Search Committee Chair, School of Kinesiology (M/C 194), The University of Illinois at Chicago, 901 West Roosevelt Road, Chicago, Illinois 60608. Email: kinase@uic.edu.
- An Assistant/Associate Professor position is available in the Physical therapy Department at east carolina University for an individual with research interest and experience in one of the following areas: gerontology, biomechanics, work hardening/conditioning. A PhD is required and a PT degree preferred but not required. Submit a letter of intent, curriculum vitae, and a list of three references to MS Templeton, Chairperson faculty Search Committee, Physical Therapy Department, SAHS, East Carolina University, Greenville, NC 27858-4353, Tel:(919) 328-4450; Fax (919) 328-0707
- The Department of Human Biology and Nutritional Sciences at the University of Guelph invites applications for a tenure-track position at the Assistant Professor level in the area of biomechanics and ergonomics. Applicants should have a PhD or equivalent with postdoctoral experience being an asset. Send a CV, 2 representative publications, documentation of teaching abilities, and the names of 3 referees to: Chair of the Search Committee, Department of Human Biology and Nutritional Sciences, University of Guelph, Guelph, Ontario, Canada, N1G 2W1, Fax: 519-763-5902. This advertisement is directed to Canadian citizens and permanent residents and subject to final budgetary approval.
- The Department of Health & Kinesiology, Georgia Southern University announces a temporary teaching position will be available for Winter & Spring Quarters, 1998 (January - June). A Ph.D. is preferred, but a master's degree will be considered to teach graduate and undergraduate

courses in biomechanics. Housed within the department are the Human Performance Laboratory, the Biomechanics Laboratory, the Sports Psychology Laboratory, the Sports Medicine Laboratory, and the Coaching Education Laboratory. Contact: K.D. Browder, PhD, Department of Health & Kinesiology, P.O. Box 8076, Georgia Southern University, Statesboro, Georgia 43460, Tel: (912) 681-5264, Fax:(912) 681-0381, Email: kbrowder@gsaix2.cc.gasou.edu

Postdoctoral Positions

- A post-doctoral position is available in the Neural Control Laboratory at the University of Kentucky. The research is related to controlling postural and movement using functional neuromuscular stimulation. A Ph.D. in Biomedical Engineering or related field is required. Contact: James J. Abbas, PhD, Center for Biomedical Engineering, University of Kentucky, Lexington, KY 40506-0070, Email: abbas@pop.uky.edu, Fax: (606)-257-1856, Tel.: (606)257-4261
- The Motion Analysis Laboratory at the University of Virginia is accepting applications for a post-doctoral research candidate. Qualifications for the position include a Ph.D. in Biomechanics, Biomedical Engineering, or related field, and research experience in motion mechanics. The ideal candidate will have experience in musculoskeletal modeling, EMG analyses, and willing to participate in the preparation and submission of research and grant proposals. The initial position is for one year, but may be extended pending funds. Send a cover letter, CV, and list of references to : E. Elliott, Manager, Motion Analysis Laboratory, Kluge Children's Rehabilitation Center, University of Virginia, Charlottesville, VA. 22903
- A postdoctoral position is available on a 3 year MRC-funded project entitled "Coordination of multiple digits in dextrous grip". Contact: P.Haggard, PhD, Department of Psychology, University College London, Gower Street, London, WC1E 6BT, Tel: +44 (0) 171 380-7558 Fax: +44 (0) 171 436 4276, Email: p.haggard@ucl.ac.uk

Graduate Assistantships

- A PhD studentship is available on a project related to gait of scoliotic patients. Applicants

should have a high class BSc honours or Masters degree in Human Movement, Sports Science, Bioengineering or any other related degree. The PhD student must have some mathematics and computing background and experience in using biomechanical equipment. Send a CV and the names and addresses of two referees through EMAIL or FAX to: G. Giakas, PhD, Tel: +44 1782 294292, Fax: +44 1782 294321

- A three-year PhD studentship for a student from an EEC country is available for a project on automated tracking of three-dimensional human movement. Applicants should have a 2:1 or 1st class honours degree in Human Movement, Sports Science, Engineering, Physics, Mathematics or Computing and should also have some mathematics and computing background. Send a CV and the name and address of one referee to: M.R. Yeadon, PhD, Biomechanics Research Laboratory, The Department of Sports Science, Loughborough University, Loughborough, Leics LE11 3TU, United Kingdom, Email: M.R.Yeadon@lboro.ac.uk
- A PhD studentship is available immediately in the Southampton Institute Dept. of Systems Engineering to study the application of Artificial Intelligence in the analysis and processing of Electromyograms (EMG). Applicants should have a Hons. Degree in an engineering or related discipline. Post grad qualifications are advantageous. Contact: A. Hope, PhD, Dept. of Systems Engineering, Southampton Institute, Southampton, Tel: 01703-319476, Fax: 01703-334441
- A research scholarship for an M.Phil./D.Phil. study is available for research in Biomechanics. Applicants should have a higher 2nd class honours degree or a 1st class honours degree in Sports Sciences, Engineering, Human Movement or Physiotherapy or a related discipline. The project will involve the analysis of throwing in sports and an understanding of the needs of elite athletes in important. Contact: D. Scott, Department of Sport Sciences, Brunel University, Osterley Campus, Isleworth, MIDDX, TW& 5DU. Please cite reference: BIO.1.

Industry, Health Care, et al.

- A full-time research position is immediately available in the Orthopaedics Biomechanics

Laboratories at The University of Chicago. Responsibilities will include experimental design, motion analysis, mechanical testing, and computational and statistical analyses. Current projects include the effects of 1) total knee replacement design on gait and stair-climbing, 2) obstacle height and location on the motions and moments of the joints of the trailing limb in the elderly when stepping over obstacles, and 3) removal and reconstruction of the radial collateral ligament on metacarpalphalangeal joint kinematics. A BS or MS in mechanical or bioengineering is required. Contact L.F. Draganich, PhD, The University of Chicago, Section of Orthopaedics and Rehabilitation Medicine, Department of Surgery, 5841 S Maryland Ave/MC3079, Chicago, IL, 60637, Tel: (773) 702-6839, Fax: (773) 702-0076, Email: ldragan@surgey.bsd.uchicago.edu

- Shriners Hospitals for Children is seeking to employ an individual with a B.S. degree in Physical Therapy or Kinesiology with prior clinical gait analysis or biomechanics experience. Contact: A.B. Liggins PhD PEng, Gait Lab Director, Shriners Hospitals for Children, 3100 Samford Avenue, Shreveport, LA 71103, Tel:(318)222-5704 x219, Email: liggins@prysm.net
- A full-time research associate position is available immediately to conduct NIH-funded studies investigating the effects of visual and auditory stimulation on upper limb motor performance in the elderly and patients with Parkinson's Disease. Candidates must minimally have a masters degree in kinesiology (motor control, biomechanics), neuroscience, bioengineering or related field plus at least one year of research experience. Send a CV and the names and addresses of three references to S.H. Brown, Ph.D., Center for Human Motor Research, Division of Kinesiology, University of Michigan, 313-763-6755, email: shcb@umich.edu
- Case Western Reserve University is seeking a doctoral-level Biomedical Engineer to participate in ongoing research on the development, use and analysis of Functional Electrical Stimulation (FES) systems for lower extremity applications in persons with spinal cord injury, or stroke. Demonstrated expertise in orthopaedic biomechanics, standing posture and balance, gait and motion analysis, neural control of movement, or rehabilitation engineering are desired. Send CV and references to: Cleveland FES Center, Director of Employee

Relations, 11000 Cedar Ave., Suite 207,
Cleveland, Ohio 44106

- The Reebok Human Performance Engineering Lab is recruiting candidates for the position of Human Performance Engineer. We are looking for engineers with a strong analytic background and exceptional knowledge of the factors influencing human performance (anatomy, physiology, biomechanics, neurophysiology, etc). Candidates must have a minimum of 3 yrs. experience working effectively within a product creation team, MS or Ph.D. in mechanical engineering, bioengineering, biomechanics, or related field, Strong connections with sport and fitness cultures, and a proven ability to manage multiple projects on a daily basis. A sense of humor is essential for survival. (Editor's note; I didn't put this in there Paul, honest!). Send a CV to P. Manfra, Fax : (617) 341-7402, Email: employment@reebok.com
- Medicus Technologies International, located on Montreal, Quebec, Canada develops products in the Orthotics and Prosthetics field. An individual is sought to direct the research and development team. Minimum qualifications: Masters degree in Biomechanics or related engineering field (Ph.D. degree plus related experience is desirable) Excellent communication skills in French and English are necessary. Contact: Philip Ha, Ing, MBA, President, Medicus Technologies International Ltee., 3205 Boul. St. Joseph Est, Montreal, Quebec, Canada H1Y-2B6, Fax: (514) 525-4057, Email: medicus@francomedia.qc.ca
- The Motion Analysis laboratory at Children s Hospital, San Diego announces an exceptional opportunity for a full-time laboratory Engineer/ Team Leader. The position requires training in electrical engineering, mechanical engineering, bioengineering, or a related field. Candidates should have a Master s degree, or at least a Bachelor s degree with significant experience. Send a cover letter, resume, and list of references to Children s Hospital, San Diego, Human Resources Dept. MC 5040, 3020 Children s Way, San Diego, CA 92123-4282.
- Sulzer Orthopedics Ltd. (Winterthur, Switzerland) is seeking a Biomechanical Engineer specializing in the spine to develop new test methods (static and dynamic) for spinal implants. Qualified individuals should have a Bachelor's or Master's degree in Mechanical Engineering (Swiss: Dipl.Masch.Ing. HTL/ETH) specializing in biomechanics or

medical technology with at least 2 years of work experience. Experience in technical writing is required with language skills in German and in either English or French. Contact: Mr. Boessiger, Human Resources, Sulzer Orthopedics Ltd., P.O. Box 65, 8404 Winterthur, Switzerland, Fax. +41 (0)52 262 0314

- The Orthopaedic Biomechanics Laboratory at Johns Hopkins University has a position available for an engineer to assist the laboratory in its program of development of advanced computer models of biomechanical systems, combined with associated graphics visualization software. Master's degree in engineering discipline (e.g. Mechanical Engineering, Biomedical Engineering, Engineering Mechanics) is required. Must have a strong background in solid mechanics and rigid body mechanics. Must have experience in development of engineering simulations and 3D visualization software. Contact: J. Elias, Ph.D., Johns Hopkins University Orthopaedic Biomechanics Laboratory, 5601 Loch Raven Blvd. 4N, Baltimore, MD 21239, Tel: (410) 532 4491, email: elias@eagle.gsh.jhu.edu, <http://www.biomech.jhu.edu>.
- A Masters Level or PhD Mechanical Engineer/Biomechanical Engineer needed for a small engineering consulting firm. The position requires a diverse skill set which will be applied to a wide variety of projects including accident analysis, injury biomechanics, design, dynamic simulation and computer modeling. Send CVs to: Piziali and Associates, 655 Sky Way, Suite 202, San Carlos, CA 94070, Fax 650-802-5949, Email carollod@piziali.com
- The "Advanced Research Department at DECATHLON, a sporting goods company in Europe, is recruiting for two positions. A Biomechanics Research Engineer must have a PhD or equivalent in the area of biomechanics or human factor engineering, 2-5 years research experience in industry or product engineering and a strong knowledge of sports. An Anthropometry & Human Factors Engineer must hold a PhD and possess a strong knowledge in anthropometry, statistics and human factors. Send a cover letter, CV, and salary requirements to: P. Freychat, DT Recherche Avancee, 4, Boulevard de Mons, 59 665 VILLENEUVE D'ASCQ, FRANCE, Fax:

120 33 75 66, Email:
jeffrey@decathlon.fr
Institute of Orthopedic Research and
is searching for an engineer to support
laboratory and clinical investigations. A
degree in a biomedical engineering,
mechanical engineering, computer science or
field is preferred. Contact: P.C. Noble,
Tel: (713) 790-3308, Fax: (713) 790-5726,
pcnoble@bcm.tmc.edu

Ergonomics Program in Richmond
is currently looking for a staff research
This is a one year position with the
for renewal. Minimum qualifications
bachelors degree in a relevant area, a
knowledge of Microsoft Excel, and good
skills. Experience with statistical
would be desirable. If interested, mail a
specifying Job #8371 to: I.
Division of Occupational
Building 30, 5th Floor,
California at San Francisco, Box
San Francisco, California 94143-0843
Group of the Institute for
has an 2 year position for a
(PhD level) within the German
program on autonomous
In this program, engineers and
searching for novel solutions for
and perform research focusing
on. Contact: Prof. Dr.
Friedrich-Schiller-
for Sport Science,
07749 Jena, Germany, Email:
uni-jena.de

Meetings, Workshops, Etc.

1997

December
Conference on Biomedical
1997, Mandarin,
Singapore
Place #04-09, Singapore
2822, Fax: (65) 295 2181,
com.sg,
/Ihome.htm

**People Health: Traumatology, Orthopaedics,
Prosthetics, Biomechanics, Rehabilitation of
Disabled, 2-5 Dec 1997, Saint-Petersburg, Russia,
Contact: Organising Committee of the Congress:
Postal address: 191025, Russia, Saint-Petersburg,
P.O. Box 204, Tel: 7-812-2796082; 7-812-
5442266; Fax: 7-812-2797664; E-mail :
ph@smit.spb.su**

1998

January

**2nd Australasian Biomechanics Conference, 28-
30 Jan 1998, The University of Auckland,
Auckland, New Zealand, Contact: R.N. Marshall,
PhD, Tel: 64 9 373 7599 ext 6630, Fax 64 9 373
7043, Email: r.marshall@auckland.ac.nz**

March

**10th International Conference on Mechanics in
Medicine and Biology, 2-5 Mar 1998, Honolulu,
Hawaii. Contact: L. Jones, Dept. Biomedical
Engineering, 3304 G.G. Brown Building, university
of Michigan, Ann Arbor, Michigan. Tel: (313)764-
9588, Fax: (313) 936-1905.**

**4th International Conference on Sports Medicine
and Science in Tennis, Coral Gables Florida.
Contact: K. Jennigs-Crooms, USTA, 7310 Crandon
Blvd, Key Biscayne, Florida, 33149, Tel: (305) 365-
8711, Email: karenc@playdev.usta.com**

April

**3rd Annual Gait and Clinical Movement Analysis
Meeting. 15-18 April, 1998. San Diego,
California. Contact: 1998 GCMA Meeting
Program Chair, Children's Hospital San Diego,
Motion Analysis Laboratory MC 5054, 3020
Children's Way, San Diego, California 92123-4282.**

May

**6th European Congress on Research in
Rehabilitation, 31 May-4 June, 1998, Berlin,
Germany, Contact: Congress Secretary ECRR-98,
H. Kirsten, c/o BAR, Walter-Kolb Str. 9-11, D-
60594 Frankfurt/M, Germany, Tel: + +49-69-
605018, Fax: + +49-69-605018-37.**

June

**International Society of Electrophysiology and
Kinesiology (ISEK), 27-20 Jun 1998 Montreal,**

Canada. Contact: ISEK Secretariat, Conference Office, McGill University, 550 Sherbrooke St. West, West Tower, Suite 490, Montreal, QC, Canada H3A 1B9, Tel: (514) 398-3770, Fax: (514) 398-4854, Email: isek@UMS1.Lan.McGill.CA, www.mcgill.ca/mco/isek

International Research Society of Spinal Deformities, 28 Jun - 1 Jul 1998, Burlington, Vermont, Contact: I.A. Stokes, PhD, University of Vermont, Department of Orthopaedics and Rehabilitation, Burlington, VT 05405-0084, USA, e-mail: irssd@med.uvm.edu,

<http://salus.med.uvm.edu/~irssd/1998.htm>

8th International Symposium of Biomechanics and Medicine in Swimming, 28 Jun-2 Jul, 1998, Jyväskylä, Finland, Contact the Symposium secretariat, Email: pitkanen@jyu.fi to get **International Society of Electrophysiology and Kinesiology (ISEK)**, Montreal, Canada, 27 - 30 June, 1998. Contact: ISEK Secretariat, Conference Office, McGill University, 550 Sherbrooke St. West, West Tower, Suite 490, Montreal, QC, Canada H3A 1B9, Tel: (514) 398-3770, Fax: (514) 398-4854, Email: isek@UMS1.Lan.McGill.CA, <http://www.mcgill.ca/mco/isek>

July

Fifth International Symposium on the 3-D analysis of Human Motion, 2-5 Jul 1998, Chattanooga, Tennessee, Contact: M. Whittle, PhD, The University of Tennessee at Chattanooga, Michael-Whittle@utc.edu, <http://www.utc.edu/Human-Movement>

11th Conference of the European Society of Biomechanics, 8-11 July 1998, Toulouse, France, Contact: ESB'98, BP 3103, 31026 Toulouse, Cedex, France, Tel: 33 5 61 77 82 84/ 33 5 62 74 83 59, Fax: 33 5 61 31 97 52, Email:

ESB98.@purpan.inserm.fr,

<http://esb.purpan.inserm.fr>

Symposium of the International Society of Biomechanics in Sports. 21-25 July, 1998. University of Konstanz (Germany). Contact ISBS'98 Secretariat, Department of Sports Science, Lehrstuhl Riehle, P.O.Box 5560 D30, 78434 Konstanz / Germany, Tel:+49-7531-883565, Fax: +49-7531-884221, Email: isbs98@uni-konstanz.de,

2nd International Conference on The Engineering of Sport, 13-17 July 1998, The University of Sheffield, Contact: Miss A. Staley, Conference Secretariat, 2nd International

Conference on the Engineering of Sport, Department of Mechanical Engineering, The University of Sheffield, Mappin Street, Sheffield S1 3JD, UK. Tel. (+ 44 114) 222 7801, Fax. (+44 114) 275 3671, email: a.staley@sheffield.ac.uk, <http://www.shef.ac.uk/uni/academic/I-M/mpe/sportseng/>

August

The Third World Congress of Biomechanics: 2-8 Aug 1998, Hokkaido University, Sapporo, Japan; Contact K. Hayashi, PhD, Biomechanics Laboratory, Department of Mechanical Engineering, Faculty of Engineering Science, Osaka University, Toyonaka, Osaka 560, Japan; Tel: +81-8-850-6170, Fax:+81-8-850-6171

The Third North American Congress on Biomechanics: 14-18 Aug 1998, University of Waterloo, Waterloo, Ontario, Canada. Contact: S. McGill, Ph.D., host chair, mcgill@healthy.uwaterloo.ca.

September

Global Ergonomics Conference, 9-11 Sep 1998, Cape Town, South Africa, Contact: D. McTeer, Postgraduate Conference Centre, University of Cape Town Medical School, Observatory 7925, Cape Town, South Africa, deborah@medicine.uct.ac.za

3rd Combined Meeting of Orthopaedic Research Societies of USA, Canada, Europe and Japan, 28-30 Sep 1998, Contact: Hayato Hirotsu, MD, Shigetomi Health Care Group, 1-1521, Shikenyu, Moriyamaku, Nagoya, Japan 463. Tel: +81-52 -776-2501, Fax: +81-52-776-2508.

November

International Conference on Weightlifting and Strength Training (in conjunction with the World Weightlifting Championships), November 10-12, 1998, Lahti, Finland, Contact: Ms Pirjo-Leena Pitkanen, Conference Coordinator, ConFinnia Ltd, P.O. Box 35, FIN-40351 Jyväskylä, Finland, Tel: +358-14-603662, Fax +358-14-603727, Email: pitkanen@jyu.fi, <http://www.jyu.fi/wlconference/>

3rd Interdisciplinary World Congress on Low Back- and Pelvic Pain, 19-21 Nov, 1998, Vienna, Austria, Contact: in Europe: European Conference Organizers, P.O.Box 4334, 3006 AH Rotterdam, The Netherlands. Phone +31 - 10- 4133287. Telefax + 31 - 10 - 4148059. Email:

SJCECO@WorldAccess.NL; in the U.S.:
University of California, San Diego, Office of
Continuing Medical Education, 9500 Gilman Drive,
0617, La Jolla, California 92093-0617, U.S.A.
Tel:(619)534 3940. Fax:(619)534 7672

1999

World Congress of Science of Football, 22-26
February 1999 University of Technology Sydney,
Australia. Contact: World Congress of Science of
Football, PO Box 236, ROSEVILLE NSW
AUSTRALIA 2069, Tel: 61 2 9411 4666, Fax: 61
2 9411 4243, Email: Nick@hotelnetwork.com.au
17th International Symposium of Bioemchanics
in Sports. 30 Jun - 6 July, Perth Western Australia.
Contact: R. Sanders, PhD, School of Biomedical
and Sportss Sciences, Edith Cowan University,
Joondalup, Western Australia, 6027. Tel: 61 8 9400
5860, Fax: 61 8 9400 5717, Email:
r.sanders@cowan.edu.au,
Http://weaver.fste.ac.cowan.edu.au/~blaw/sports/isb
s_invitation.html.

Places to "Go"

◆NACOB 98

www.ahs.uwaterloo.ca/nacob98/

◆The US government's National Library of
Medicine recently made MEDLINE available for
FREE.

<http://www.nlm.nih.gov>

◆Clinical Gait Analysis

<http://guardian.curtin.edu.au/cga>

◆Physical Medicine & Rehabilitation web page.
www.arcade.uiowa.edu/hardin-www/md-phys.html

• Computerized Functional Testing Corporation

<http://www.cftc.com>

• Second Australiasian Biomechanics Conference

<http://www.ait.ac.nz/news/conf/biomech>

On stress

YOU KNOW YOU'RE TOO STRESSED IF...

Relatives that have been dead for years come visit
you and suggest that you should get
some rest.

You can achieve a "Runner's High" by sitting up.

You say the same sentence over and over again, not
realizing that you have said it before.

The sun is too loud.

Trees begin chasing you.

You can see individual air molecules vibrating.

You begin to explore the possibility of setting up an
I.V. drip solution of espresso.

You wonder if brewing is really a necessary step for
the consumption of coffee.

You say the same sentence over and over again, not
realizing that you have said it before.

You can hear mimes.

You believe that if you think hard enough, you can
fly.

Things become "Very Clear".

You ask the drive-thru attendant if you can get your
order to go.

You begin speaking in a language that only you and
Channelers can understand.

You say the same sentence over and over again, not
realizing that you have said it before.

The less sense matter and matter is more than sense.
You keep yelling, "STOP TOUCHING ME!!!" even
though you are the only one in the
room.

Your heart beats in 7/8 time.

You and Reality file for divorce.

You can skip without a rope.

It appears that people are speaking to you in binary
code.

You say the same sentence over and over again, not
realizing that you have said it before.

You have great revelations concerning Life, the
Universe and EVERYTHING else,
but can't quite find the words for
them before the white glow
disappears, leaving you more
confused than before.

You can travel without moving.

Antacid tablets become your sole source of
nutrition.

You discover the aesthetic beauty of office supplies.

You have an irresistible urge to bite the ears of the
people you

are talking to.

Losing your mind was okay, but when the voices in
your head quieted, it was like losing
your best friend.

*Thanks to Rachel Skoss for passing this on from
someone else.*

Water-based activities to reduce stress

Editor's Note: Who among us hasn't experienced stress as part of our daily lives? Now, from the magic of H₂O and mental imagery comes a solution. I will be pleased to receive any testimonials from any one for whom this works.

Feeling stressed out? Relax and enjoy this new stress relief method. Picture yourself near a stream. Birds are softly chirping in the crisp cool mountain air. Nothing can bother you here. No one knows this secret place. You are in total seclusion from that place called "the world.". The soothing sound of a gentle waterfall fills the air with a cascade of serenity. The water is clear. You can easily make out the face of the person whose head you're holding under the water. Look. It's the person who caused you all this stress in the first place. What a pleasant surprise. You let them up... just for a quick breath...then ploop!... back under they go... You allow yourself as many deep breaths as you want. There now... feeling better?

Thanks to Jonathan Dingwell, Penn State University, for this submission.

SO What's the Problem here?

Here are some words of wit that only US tax dollars could buy. Here are some actual maintenance complaints submitted by U.S. military pilots after their flights, and the replies from the maintenance crews.

Problem: "Left inside main tire almost needs replacement."

Solution: "Almost replaced left inside main tire."

Problem: "Test flight OK, except autoland very rough."

Solution: "Autoland not installed on this aircraft."

Problem #1: "#2 Propeller seeping prop fluid."

Solution #1: "#2 Propeller seepage normal."

Problem #2: "#1,#3, and #4 propellers lack normal seepage."

Problem: "The autopilot doesn't."

Signed off: "IT DOES NOW."

Problem: "Something loose in cockpit."

Solution: "Something tightened in cockpit."

Problem: "Evidence of hydraulic leak on right main landing gear."

Solution: "Evidence removed."

Problem: "Number three engine missing."

Solution: "Engine found on right wing after brief search."

Problem: Autopilot in altitude hold mode produces a 200 fpm descent.

Solution: Cannot reproduce problem on ground.

Problem: IFF inoperative.

Solution: IFF inoperative in OFF mode. Operative in ON mode

Problem: Friction locks cause throttle levers to stick.

Solution: That's what they're there for.

Problem: "DME volume unbelievably loud."

Solution: "Volume set to more believable level."

Problem: Dead bugs on windshield.

Solution: Live bugs on order.

Thanks to Alan Litsky, Ohio State University (and Editorial Board member for the Annals of Improbable Research) for this submission

A New Journal: The Journal of Computer Methods in Biomechanics and Biomedical Engineering

The first issue of this new journal, edited by John Middleton, has recently been published. The Editorial Board of the journal includes: S.Arnoczky, J.M.Crolet, J.H. Heegaard, S.J. Hollister, R. Huiskes, M.L.Jones, I.Knets, A. McCulloch, A. Natali, C., Oomens, T.M.Peters, B.R.Simon, R.L.Spilker, G.Steven, R.Summers, K.Tanne, D.Taylor, A. Toni.

The journal provides a means of communicating advances and innovations in the areas of biomechanics and biomedical engineering and to stimulate interest in the continually emerging computer based technologies applied in these multidisciplinary areas. The journal will also provide a focus on the importance of integrating the disciplines of engineering with medical technology and clinical expertise.

You just might be a graduate student if ...

you can identify universities by their internet domains.

you are constantly looking for a thesis in novels.
you have difficulty reading anything that doesn't have footnotes.

you understand jokes about Foucault.
the concept of free time scares you.

you consider caffeine to be a major food group.
you've ever brought books with you on vacation and actually studied.

Saturday nights spent studying no longer seem weird.
the professor doesn't show up to class and you discuss the readings anyway.
you've ever travelled across two state lines specifically to go to a library.
you appreciate the fact that you get to choose *which* twenty hours out of the day you have to work.
you still feel guilty about giving students low grades (you'll get over it).
you can read course books and cook at the same time.
you schedule events for academic vacations so your friends can come.
you hope it snows during spring break so you can get more studying in.
you've ever worn out a library card.
you find taking notes in a park relaxing.
you find yourself citing sources in conversation.
you've ever sent a personal letter with footnotes.

Thanks to Rachel Skoss, Down Under, for this submission

and also related to the things you learn in graduate school (or beyond)

If at first you don't succeed, destroy all evidence that you tried.
A conclusion is the place where you got tired of thinking.
Experience is something you don't get until just after you need it.
For every action, there is an equal and opposite criticism.
He who hesitates is probably right.
Never do card tricks for the group you play poker with.
No one is listening until you make a mistake.
Success always occurs in private, and failure in full view.
The hardness of the butter is proportional to the softness of the bread.
The severity of the itch is proportional to the reach.
To steal ideas from one person is plagiarism; to steal from many is research.
To succeed in politics, it is often necessary to rise above your principles.
Two wrongs are only the beginning.

Work is accomplished by those employees who have not reached their level of incompetence.
The problem with the gene pool is that there is no lifeguard.
Monday is an awful way to spend 1/7th of your life.
The sooner you fall behind, the more time you'll have to catch up.
The light at the end of the tunnel is the headlight of an approaching train.

Thanks to Ingrid Franklin, from Parts Unknown, for this contribution

From an ISB Affiliate Society

The new board of the Czech Society of Biomechanics was confirmed at the last plenary session in March 97. New board is as follows:
President: Stanislav OTJHAL (Charles University Prag, Dept. of Anatomy & Biomechanics, Vice-president: P^2emysl JEN+25EK (*Editor's note: Sorry about the preceding coding problem*) (Technical University Brno), Otmar KITTNAR (Charles University Prag, Dept. of Physiology), Scientific secretary: Miroslav SOCHOR (Czech Technical University Prag), Manager: Monika CHALUPOVA (Charles University Prag). To contact the CSB: CSB, FTVS UK, Dept. of Anatomy and Biomechanics, J.Martiho 31, 162 52 Prag 6, (CZ), Email addresses: csb@ftvs.cuni.cz, otahal@ftvs.cuni.cz, chalupova@ftvs.cuni.cz, sochor@fsid.cvut.cz, <http://www.ftvs.cuni.cz/csb/> (temporarily only czech version, english will be installed in September 97)

The Thesis Exchange

Editor's note: This newsletter component provides a vehicle through which graduate students can disseminate, reasonably rapidly, the results of their Masters and Doctoral studies to the biomechanics community. These abstracts are intended also to provide impetus for interactive discussions on these topics among members and, thus, may provide valuable feedback to the author. Comments may be directed to the newsletter Editor for inclusion in future issues. The Newsletter Editor assumes no responsibility for being unilingual. Since no one seems to follow the previously published instructions anyway, submissions are received at the Editorial Office in many different forms, some of these forms are acceptable. The Editorial Office is particularly pleased to receive Thesis Abstracts that include data.

The Mechanics of Rehabilitation Exercises for the Cruciate Ligament-Injured Knee

A Thesis submitted for the degree of Doctor of Philosophy
Danielle E. Toutoungi, University of Oxford, July 1997.

Supervisor: Prof. JJ O'Connor

Injuries to the cruciate ligaments of the knee are common and can lead to a significant reduction in function for the patient. Effective rehabilitation is crucial for a successful outcome to treatment. However, the lack of quantitative data on forces carried by the ligaments during rehabilitation exercises has hindered the design of optimum rehabilitation programmes.

In this thesis, a method for calculating ligament forces during activity is presented. The method was applied to three types of rehabilitation exercise: isokinetics, isometrics and squats. Experiments were carried out on groups of normal subjects, in which the external forces acting on the body and the movements of body segments were recorded as the subjects performed the exercises. These data were used to calculate resultant joint forces and moments. Geometrical models of the lower limb were used to determine the arrangement of the load-bearing structures of the limb at each time instant. Possible force distributions were calculated by considering dynamically determinate solutions and applying one-sided physiological constraints.

The method was found to be a viable means of calculating upper bounds on ligament forces, and in some cases, the exact force values. Peak ligament forces for each exercise were calculated. Isokinetic extension was found to present some risk to the damaged anterior cruciate ligament (ACL) but not to the posterior cruciate ligament (PCL). Isokinetic flexion and squats both produced high peak PCL forces, but produced either no ACL force or low ACL forces during a small part of the range only. An error analysis was performed to establish upper limits of uncertainty on the peak forces. Isokinetic exercise was considered in further detail to assess the effectiveness of the exercise.

It is concluded that this method represents a valuable tool for providing quantitative data regarding the effects of rehabilitation exercises on ligaments, information that may be of use in the design of improved rehabilitation programmes.

DIRECTORY of ISB EXECUTIVE COUNCIL MEMBERS

(Officers are listed on the cover)

Leendert Blankevoort

Biomechanics Section
800 Institute of Orthopaedics
University of Nijmegen
NL-6500 HB Nijmegen
THE NETHERLANDS
Tel: + 31 24 361 6959
Fax: + 31 24 354 0555
e-mail: L.Blankevoort@orthp.azn.nl

Gert-Peter Brüggemann

Deutsche Sporthochschule Köln
Inst. für Leichtathletik & Turnen
Carl-Diem-Weg 6
D-50933 Köln
GERMANY
Tel: + 49 221 498 2418
Fax: + 49 221 497 3454
e-mail: brueggemann@hrz.dshs-koeln.de

Brian L. Davis

Department of Biomedical Engineering
The Lerner Research Institute
The Cleveland Clinic Foundation
9500 Euclid Avenue
Tel: +1 216 444 - 1055
Fax: +1 216 444 - 9198
E-mail: davis@bme.ri.ccf.org

Bruce C. Elliott

Department of Human Movement
The University of Western Australia
Nedlands, Perth, AUSTRALIA 6009
Ph Office: +61 9 380 2374
Fax: +61 9 380 1039
E-Mail: bellio@uniwa.uwa.edu.au

Mark D. Grabiner

Department of Biomedical Engineering,
The Lerner Research Institute
The Cleveland Clinic
Cleveland, Ohio, 44106
Tel: + 1 216 444 7276
Fax: +1 216 444 9198
E-Mail: grabiner@bme.ri.ccf.org

Keijo Häkkinen

Department of Biology of Physical
Activity
University of Jyväskylä
PO Box 35
Jyväskylä
FINLAND
Tel: +358 14 602076
Fax: +358 14 602071
e-mail: Hakkinen@maila.jyv.fi

Toshio Moritani

Lab. for Applied Physiology
Graduate School of Human &
Environmental Studies
Kyoto University
Sakyo-ku, Kyoto 606, JAPAN
Ph. Office: +81 75 753 6888

Mary Rodgers

Department of Physical Therapy
University of Maryland
100 Penn Street
Baltimore, MD 21201 USA
Tel: + 1 410 706 0840
Fax: + 1 410 706 6387
Email: mrogers@physio.ab.umd.edu

Gisela Sjøgaard

Department of Sports Science
University of Odense
Campusvej 55
DK-5230 Odense M
DENMARK
Tel: +45 65 57 3423
Fax: +45 66 15 8612
e-mail: gis@sportmed.ou.dk

Anton J. (Ton) van den Bogert

Human Performance Laboratory
The University of Calgary
Calgary, Alberta T2N 1N4
CANADA
Ph. Office: 403 220 3436
Fax: 403 284 353
E-Mail: bogert@acs.ucalgary.ca

EDITOR'S NOTE

The ISB Newsletter is published quarterly: February-March (Spring); May-June (Summer); August-September (Autumn), and November-December (Winter). There may be alternative printing schedules that coincide with unbelievable errors. Deadlines for material and articles are the first day of each first named month, except in the alternative schedule in which there are no deadlines or simply nothing will be accepted. The Newsletter is mailed to members whenever we can get to it except, of course on the alternative schedule which is always on time. Members are encouraged to submit just about anything they would like to relate to the biomechanics community. The content of the Newsletter does not necessarily reflect the philosophy and opinions of the ISB but may reflect the mood of the Editor. Naturally, serious items such as *Letters*, *Special Articles*, *Affiliate Society News*, *Laboratory Features*, *Reports*, or *Announcements of Meetings, Conferences, and Jobs Available*, *Reviews* of relevant conferences and other serious biomechanics-related information is desirable. *Thesis Abstracts* can be published. Thesis abstracts should provide an Introduction that includes the rationale and hypotheses of the study, description of the methods, the key results, and important conclusions. The title of the work, student's name, department and institution, the degree earned and the conferring institution and supervisor's name should also be provided. Clearly though, no one actually does this but its important to have guidelines nevertheless. Material may be submitted electronically or on a computer disk as a text-only file, and must be in English..

New Members to ISB

NYDEGGER, Thomas (#1927)
 Dept. Basic & Clinical Biomechanics
 University of Bern / M.E. Mueller Inst.
 for Biomechanics
 Murtunstr. 35
 Bern, BE 3010
 SWITZERLAND

CISSIK, John (#1928)
 Department of Health and Kinesiology
 Texas A&M University
 College of Education
 College Station, TX 77843-4243
 USA

BLANCHONETTE, Peter (#1929)
 Air Operations Division
 Aeronautical & Maritime Research Lab.
 506 Lorimer Street
 Fishermen's Bend, Vic 3207
 AUSTRALIA

MCGUANE, Ciaran (#1930)
 "Maura Ville"
 South Douglas Road
 Cork, Ireland
 UNITED KINGDOM

ARAMPATZIS, Adamantios (#1931)
 Institute for Athletics and Gymnastics
 German Sport University of Cologne
 Carl-Diem-Weg 6
 Cologne 50933
 GERMANY

LANGELAAN, Maaïke (#1933)
 University of Maastricht
 Bolderikweerd 27814
 Maastricht
 THE NETHERLANDS

LIEBSCHNER, Michael (#1934)
 Dept. of Mechanical Engineering
 Musculo Skeletal Laboratory
 University of Vermont
 119 Votey Building
 Burlington, Vermont 05405
 USA

HERBERT, Rob (#1935)
 School of Physiotherapy
 University of Sydney
 P.O. Box 170 Lidcombe
 Sydney, NSW 2141
 AUSTRALIA

DIKEMAN, Jennifer (#1936)
 Dept. of Biological Engineering
 North Carolina State University
 400-R Mayfield Circle
 Durham, NC 27705
 USA

KEAT, James E. (#1937)
 424 Ridge Road, Apt. 9
 Greenbelt, MD 20770-1636
 USA

TSUNODA, Naoya (#1938)
 Human Performance Lab
 School of P.E.
 Kobushiban University
 7-3-1 Nagayama
 Tama, Tokyo 206
 JAPAN

HULL, Diane (#1939)
 US Government/Navy (NSWC)
 101 Strauss Ave., Code 4220a.
 Bldg. 301
 Indian Head, MD 20640
 USA

BARTOLD, Simon (#1940)
 Dept. of Podiatry / Physiotherapy
 University of South Australia
 32 Paynehan Road
 Stepney, SA 5069
 AUSTRALIA

CHEHADE, Mellick Joseph (#1941)
 > Dept of Orthopaedic Surgery
 > Royal Adelaide Hospital
 P.O. Box 330
 Daw Park, SA 5041
 AUSTRALIA

LIU, Yu (#1942)
 Dept. of Physical Education
 Chinese Culture University
 Haw Kang Rd. 55
 Taipei 111
 TAIWAN

BUCHANAN, Thomas (#1943)
 Dept. of Mechanical Engineering
 University of Delaware
 126 Spencer Lab
 Newark, DE 19350
 USA

JENSEN, Bente Rona (#1944)
 Department of Physiology
 National Instit. of Occupational Health
 Lerso Parkalle 105
 2100 Copenhagen O,
 DENMARK

SOGAARD, Karen (#1945)
 Department of Physiology
 National Instit. of Occupational Health
 Lerso Parkalle 105
 2100 KBH O
 DENMARK

SCHIBYE, Bente (#1946)
 Department of Physiology
 National Instit. of Occupational Health
 Lerso Parkalle 105
 210 Copenhagen O
 DENAMRK

NAM, Eun-Kyoung (#1947)
 Department of Physical Education
 Seoul Women's University
 126 Kongnung 2 Dong
 Nowonku, Seoul 139-774
 KOREA

RYU, Ji-Seon (#1948)
 Department of Physical Education
 Korean Nat. University of Phys. Ed.
 88-Oryn-Dong, Song Pa-Gu
 Seoul
 KOREA

OLREE, Kenneth (#1949)
 Human Performance Laboratory
 Barnes-Jewish Hospital
 4555 Forest Park Parkway, St Louis,
 Missouri, 63108
 USA

OZAKI, Tetsuro (#1950)
 Institute of Health and Sport Sciences
 University of Tsukuba
 Tennoudai 1-1-1, Tsukuba, Ibaraki, 305
 JAPAN

ROWE, Philip John (#1951)
 Department of Physiotherapy
 Queen Margaret College
 Duke Street, Leith, Edinburgh,
 Scotland,
 EH8 6HF
 UK

KIZUKO, Tomohiro (#1952)
Human-Environment System
Department
National Institute of Bioscience and
Human Technology
1-1 Higashi, Tsukuba, Ibaraki, 305
JAPAN

CHUANG, Long-Ren (#1953)
Department of the Chinese Martial Arts
Chinese Culture University
55 Hwa Kung Road, Yang Ming Shan
Taipei, Taiwan
REPUBLIC OF CHINA

KUBO, Yasuyuki (#1954)
Institute of Health and Sport Sciences
University of Tsukuba
1-1-1 Tennohdai, Tsukuba, Ibaraki
JAPAN

TAKAHASHI, Kotaro (#1955)
Department of Education
Saitama University
1-12-15 Higashioizami, Nerima-ku
Tokyo, 178
JAPAN

LIU, Zizhen (#1956)
Mechanical and Mechatronic
Engineering
Sydney University
7 Hibiscus Street, Greystanes
NSW, 2145
AUSTRALIA

LASCALZA, Suzanne (#1958)
Department of Bioengineering
Syracuse University
7 Fairway Drive
Middle Island, NY 11953
USA

STERGION, Nicholas (#1959)
School of Health, Pys. Ed. &
Recreation
University of Nebraska at Omaha
60th and Dodge Streets
Omaha, Nebraska, 68182-0216
USA

NISHIJIMA, Yoshinori (#1960)
Dept. of Arts & Science - Div. of Sports
Osaka Kyoiku University
4-698-1 Asahigaoka
Kashiwara-city, Osaka 582
JAPAN

YAGGIE, James A. (#1961)
Dept. Appl. Biomechanics - Hlth & HP
The University of Toledo
1174 Hidden Ridge Rd.
Toledo, Ohio 43615
USA

YAMAMOTO, Noriyuki (#1962)
Tokushima Bunri University
1314-1 DouBayashi
Shido-Tyoubu, Ohkawa, Kagawa 869-21
JAPAN

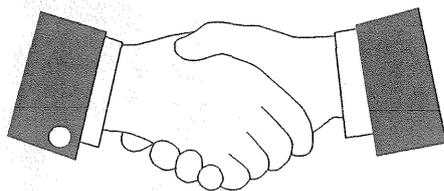
COLEMAN, Simon (#1963)
Dept. Phys. Ed., Mvmt. & Leisure
Studies
Moray House Institute
Edinburgh University
Cramond Rd., North
Edinburgh, Scotland EH4 6JD
UNITED KINGDOM

HAMER, Peter (#1964)
Department of Human Movement
The University of Western Australia
Nedlands, WA 6009
AUSTRALIA

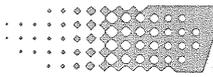
CUNNINGHAM, Phil (#1965)
Grad Learner #120768
The Union Institute
336 NE 118th Street
Miami, FL 33161
USA

HEMMINGS, Sarah Michelle (#1966)
Center for Biology and Medical Systems
Imperial College of Science,
Technology
& Medicine
Exhibition Road, South Kensington
London, SW208HT
UNITED KINGDOM

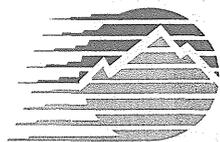
The International Society of Biomechanics
Gratefully Acknowledges the Support
of these Companies



Major Sponsor
KISTLER
Supporters

 **MotionAnalysis**TM

3617 Westwind Blvd. Santa Rosa, CA, 95403 Tel: 707-579-6500 FAX 707-526-0629



PEAK

PERFORMANCE TECHNOLOGIES INC.

VIDEO AND ANALOG MOTION MEASUREMENT SYSTEMS

QUALISYS

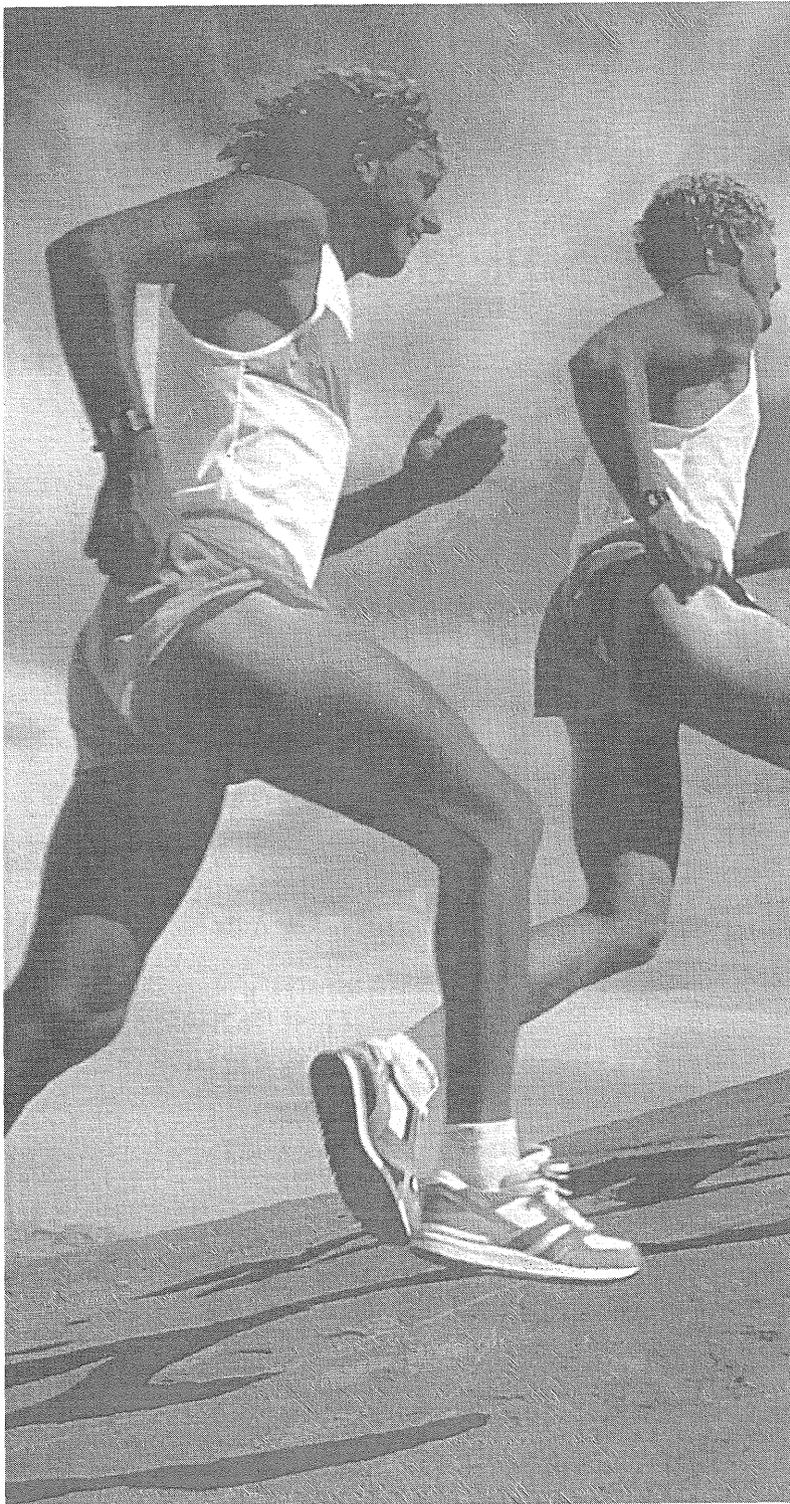
Mac Reflex
Motion Capture Systems

Qualisys AB (publ.) Ögärdesvägen 4, 433 30 Partille SWEDEN Tel: +46 31-36 30 10 Fax: +46 31-36 45 15
Qualisys, Inc. 41C New London Turnpike, Glastonbury, CT 06033 USA Tel: +1 203 657 35 85 Fax: +1 203 657 35 95
e-mail: sales@qualisys.se

Vicon
Motion Systems

**OXFORD
METRICS**

Oxford Metrics Limited, 14, Minns Estate, West Way, Botley, Oxford OX2 0JB, United Kingdom
Tel: 01865 261800 Fax: 01865 240527 E-Mail: sales@metrics.co.uk Web: <http://www.metrics.co.uk>



Biomechanics.
Measuring
dynamic forces is
our business.

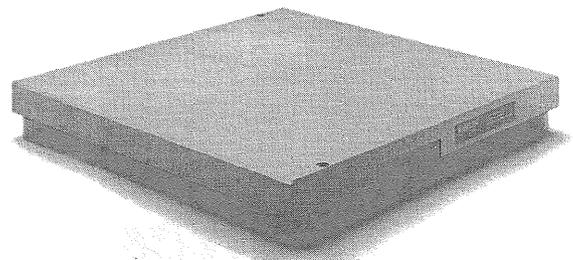
Measuring ground reaction forces has been a Kistler speciality for decades. Complete systems including force plates, electronics and user friendly software. Unequalled accuracy and reliability for research, diagnosis, rehabilitation and sports. Setting worldwide standards.



Kistler Instrumente AG Winterthur, P.O. Box 304, CH-8408 Winterthur, Switzerland
Tel +41 -52-224 11 11, Fax +41 -52-224 14 14

Kistler Instrument Corp., 75 John Glenn Drive, Amherst, NY 14228-2171, USA
Tel (716) 691 51 00, Fax (716) 691 52 26

Kistler Instruments Ltd., Whiteoaks, The Grove, GB-Hartley Wintney, Hants RG27 8RN, UK
Tel (0252) 84 35 55, Fax (0252) 84 44 39



KISTLER