



International Society of Biomechanics Newsletter

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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 Editor: Mark D. Grabiner

I have never met Y.C Fung who is looked upon by many as the pre-eminent biomechanist of the 20th century. However, in 1992, I heard Dr. Fung deliver the Borelli Award Lecture at the 2nd NACOB meeting in Chicago. In his lecture, Dr. Fung made reference to three verses of poetry that I found particularly beautiful. I later wrote Dr. Fung and inquired about the verses. In his handwritten return note was included a copy of the verses. I was then, and remain today, amazed at Dr. Fung's accessibility and kindness. Last August, while at the 3rd World Congress on Biomechanics I learned that Dr. Fung had been honored by the National Academy of Engineering as the recipient of the 1998 Founders Award. The National Academy of Engineering (www.nae.edu) is a private, independent, nonprofit institution that is advisory to the US government "whenever called upon by any department or agency of the Government, to investigate, examine, experiment, and report upon any subject of science or art." The NAE is a member of the larger Academy complex, made up of the National Academy of Sciences, the National Academy of Engineering, the Institute of Medicine, and the National Research Council. The Founders Award, instituted by the Academy's founding members, is the NAE's oldest award and is given to honor outstanding contributions by an engineer both to his profession and to society. After returning from Sapporo, I wrote Dr. Fung a congratulatory note. He answered with a handwritten note and a copy of his acceptance remarks that I would like to share with you all.

The citation of the Dr. Fung's award were as follows: *"For superb accomplishments in biomechanics and aeroelasticity research, for broad contributions to the scientific discipline of biomechanics, and for outstanding leadership and statesmanship in developing biomechanics as a discipline in the 20th century."*

Dr. Fung's acceptance remarks was as follows: "President Wulf, Dr. Brenner, Fellow Members of the Academy, Colleagues, Friends, Ladies and Gentlemen: I deeply appreciate the great honor the Academy is bestowing upon me with this Founders Award. I am glad to receive it because I feel that by honoring me, you are honoring the fields of biomechanics and aeroelasticity and all my colleagues working in these fields. In front of my colleagues and your

distinguished presence, I am filled with a deep sense of humility. Dr. Brenner, I thank you for your most kind introduction.

I wish to thank my nominators and the members of the Awards Committee for their kindness and generosity. I thank many of my life-long friends, especially Drs Shu Chien, Van Mow, Savio Woo, Bob Nerem, Sidney Sobin, Mike Yen, Che Min Cheng, Shu Qian Liu, and Wei Huang; and my deceased mentor Ernie Sechler, and my friend Chia Shun Yih. To my wife Luna, my son Conrad, my daughter Brenda, my son-in-law Ken, and my grandson Nick, who are here, I give you my love and thanks! I wish my parents could be here to receive my thanks.

I would like to say a few words about my field, biomechanics, how I got there, as well as my perspective today. I spent the first twenty-four years of my working life first in China, then in the California Institute of Technology in Pasadena, California. My early research was on the dynamics of the airplane in turbulent weather. Combining solid mechanics with fluid mechanics, we call that kind of study the theory of aeroelasticity. Later, I focused on aircraft and spaceship safety, performance and design. In 1958, however, I took a sabbatical leave from Caltech with a Guggenheim Fellowship and went to Germany. There I had time to think about problems other than aeronautics. I became interested in the mechanics of the eye because my mother was suffering from glaucoma. I studied the medical literature, but found it avoids mechanics. Gradually, I was convinced that the understanding of the function of our bodies could be improved if the roles played by forces and motion and stress and strain were analyzed as thoroughly as we do for airplanes.

Upon returning to Caltech, I began to work on blood cells, blood vessels, and microcirculation. At that time, there was a mystery in physiology. Our smallest blood vessels, with walls of thickness about one tenth of our hair was found to be the most rigid of all blood vessels. I, together with Zweifach and Intaglietta, solved the mystery by pointing out that the surrounding tissues support these vessels. From this came Fung's tunnel theory of the smallest blood vessels. In the meantime, I predicted that the smallest blood vessels in the lung are the softest of all blood vessels because they have no neighboring

tissue to support them. That prediction turned out to be true also. Then I got a theory to explain why our red blood cells are so strong. Billions of these little cells circulate through our smallest blood vessels whose diameters are about the same as that of the cell. Imagine yourself swimming in a tunnel so tight that both of your shoulders touch the wall, and swimming fast unceasingly for 120 days! These little red blood cells survive such gruesome condition! What's the secret? I found the answer, it's their biconcave shape like a donut without a hole. This shape guarantees that the stress in their wall to be zero. So the red cells have a geometrical design which guarantees stress free in life. This reminds me of Taoism in China; the soft wins over the hard, feminism wins over machismo!

In 1965, I realized that if we know the structure and mechanical properties of the materials of a living organ, then by the principles of physics we should be able to predict the functions of that organ. This was a vision I was willing to work for. I decided to give up my first love of aeronautics and resign my professorship at the California Institute of Technology. This decision was very difficult for me because I loved that institution. But I had fallen in love with biomechanics. In 1966, I left Caltech and moved to the University of California, San Diego to initiate a B.S., M.S., and Ph.D. program on Bioengineering. On research, I decided to clarify the blood circulation in the lung. I formulated a sheet-flow theory. To fill in all the experimental details, I worked with my friends Sid Sobin and Mike Yen and many students on the anatomy, histology, microscopy, design and construction of new instruments, testing, theorizing, and calculating. We finished the first round of the lung work in 12 years. It was a fun filled period. We found new things right and left. All together, we published about 100 papers on the lung, each clarifying a piece of the puzzle. Toward the end, all ad hoc hypotheses were removed, our sheet-flow theory was established, and the agreement between theory and experiment was gratifying.

Following the lung work, we looked into the heart, the intestines, the ureter, the tissue remodeling under stress, the problem of high blood pressure etc. The field is so rich that in every direction we looked there were interesting fruits to be picked. But the most remarkable thing

is that the whole field is now in full bloom. What was vision to me earlier is now a common sense. Now the field has many, many experts, working on many, many fronts. The scouting boats have been replaced by big ships. The water level is very high; and the explorers are diving to great depth. A field which was dominated by continuum mechanics before is now working on molecular mechanics. Nevertheless, the aim of biomechanics remains the same. The aim is to clarify the role of forces in relating structure to function in biology.

Thus, molecular biomechanics connects the molecular structure to molecular function. The cell membrane biomechanics connects the membrane structure to the membrane functions. Similarly, cell biomechanics links cell structure to cell function, tissue biomechanics links tissue structure to tissue function, organ biomechanics connects organ structure to organ function, whole body mechanics links up body structure to body function. Hence, biomechanics is the middle name of biological structure and function. Bioengineers use these mechanics to invent ways to help the biologists, the physicians, and the patients.

But becoming important is not the whole story. To me and many of my colleagues, the factors of personal interest and satisfaction are significant. Perhaps because the field of bioengineering is so large, and its maturity is still far away, it is easy to feel that you are still a pioneer making personal discoveries. I am sure that the sum total of our effort will benefit mankind. Thank you, very much"



Y-C Fung, Professor Emeritus, University of California, San Diego

From the President: Günter Rau

Newly Elected HONORARY MEMBERS

Honorary Membership in ISB is only bestowed on those who have made outstanding contributions to the development of biomechanics. This year two eminent biomechanists, and long-time members of our Society, were nominated and duly elected to Honorary Membership by the Executive Council for their extensive contributions to both the scientific and professional aspects of biomechanics. These members are Professors James G. Hay and David A. Winter.

Professor Jim Hay is a past President of both ISB and ASB, and has served on sub-committees of the US Olympic Committee, the International Olympic Committee and as Chairman of the Kinesiology Academy (American Alliance of Health, Physical Education and Recreation). He is, however, most widely known for his writings on Sports Biomechanics having published 10 books and over 200 articles on the subject! In 1991 he was chosen as the Wartenweiler Memorial lecturer for the XIIIth Congress of ISB, and next year he will deliver the Geoffrey Dyon Memorial Lecture at the XVIIth International Symposium on Biomechanics. He recently retired from his academic position at the University of Iowa and has returned to his native New Zealand.

Professor David Winter has also received recognition as a Wartenweiler Memorial Lecturer (XVth Congress of ISB) and recipient of the Geoffrey Dyon Award of the ISBS. He is a past President of the Canadian Medical & Biological Engineering Society (1970-74) and was responsible for setting up the first clinical gait laboratory in Canada (Shriners Hospital, Winipeg). He has published over 140 research papers, most in the area of biomechanics and electromyography of normal and pathological gait, but is probably best known for his texts on *Biomechanics and Motor Control of Human Movement* and *Balance during Standing and Walking*. He retired in 1994 but is still active in research at the University of Waterloo where he was recently made Distinguished Professor Emeritus.

From the Treasurer: Graeme Wood

This Newsletter issue brings with it your "invoice" for 1999 ISB Membership and Journal subscriptions. Please return this form to me as quickly as possible so as to avoid disruption to the delivery of your subscriptions. Payment must be in Australian dollars (\$AUS) - otherwise ISB incurs significant expense in renegotiating foreign currency amounts. Credit card payments are the preferred method, but any cheque drawn on an Australian bank (preferably Westpac/Challenge bank) is quite acceptable. Please take a moment to check the accuracy of your listed mailing address as well as your telephone, fax and Email details. This information is now retrievable through the ISB Web Site, so if you do not wish to be that "accessible" just let me know and this information will be removed from the public membership listing.

From Elsevier Science: Amy Hunter

From now on only those issues of *Journal of Biomechanics* and *Clinical Biomechanics* that are published early (i.e. at the end of the previous calendar year) and issues published in January, will be sent to non-renewed subscribers. If, however, Issue No. 1 of those journals is published late (after January) or, as is the case with the *Journal of Electromyography and Kinesiology*, Issue No. 1 is only scheduled to appear after January, those first issues will be sent out as grace issues, but no further journals will be sent until the publisher has been advised of your subscription renewal.

ISB Awards 1999: Leendert Blankevoort

In 1999 there the following ISB awards will be presented:

- the Young Investigator Awards
- the Clinical Biomechanics Award
- the Promising Young Scientist Award.

Young Investigator Award

There are two awards, one for the best oral presentation (sponsored by *the Journal of Biomechanics*, Elsevier Science Ltd) and one for the best poster presentation (Sponsored by the ISB) at the XVIIth Congress of the ISB. The award recipients are offered a certificate, a monetary award of US\$ 500 and a reimbursement of the registration fee of the Congress. A short biography with an outline of the recipients' professional background is published in the ISB Newsletter

Requirements

Candidates must be the first author of an abstract submitted for a presentation of the XVIIth ISB Congress, have a maximum age of 35 at the first day of the congress, must have made the major contribution to the research presented in the abstract. If selected for the final round, the candidate must personally present the paper (whether oral or poster) at the XVIIth ISB Congress. The abstracts for this competition are solicited with the call for papers of the XVIIth ISB Congress.

Time schedule

Submission of abstract to Congress Secretariat:

January 31, 1999 (deadline)

Notification of the nomination: May 15, 1999

Final decision and presentation of the Award:

August 13, 1999

Clinical Biomechanics Award

This award is sponsored by *Clinical Biomechanics*, Elsevier Science Ltd. The winning paper will be published as the ISB Clinical Biomechanics Award paper in *Clinical Biomechanics* (subject to a normal peer review process). The first author of the winning paper will receive a certificate and a monetary award of US\$ 750. The first author of the winning paper will receive a reimbursement of the registration fee of the Congress.

Requirements

Any scientist may submit an abstract for the award, except the members of the ISB Executive Council. From the abstracts submitted for this competition, 5 abstracts are selected and nominated for the award. The authors of the 5 selected abstracts are requested to submit a full length paper prepared according to the guidelines of *Clinical Biomechanics*. The paper must be entirely original, not published at the time of the Congress in any journal nor submitted for publication to any Journal or Book other than *Clinical Biomechanics*. The paper must describe a study related to a clinical problem and contain some sort of biomechanical analysis pertaining to the clinical problem. A jury will evaluate the full papers and select the winning paper. The first author of the winning paper is invited to give an oral presentation of the winning paper at the XVIIth ISB Congress in a plenary session. Abstracts are solicited for this competition with the call for papers for the XVIIth ISB Congress.

Time schedule

Submission of abstract to Congress Secretariat:

January 31, 1999 (deadline)

Notification of the nomination: March 24, 1999

Submission of full manuscripts to jury chairman:

April 24, 1999 (deadline)

Decision and notification: May 15, 1999

Presentation of the Award: August 13, 1999

Promising Young Scientist Award

This award is sponsored by Peak Performance Technologies. The Promising Young Scientist Award is a travel grant for scientific purposes, i.e. attending an international meeting or visiting other research groups. The recipient of this award receives a certificate and a monetary award of US\$ 1500 for the purpose of covering travel costs. If the recipient chooses to attend the XVIIth ISB Congress and present his or her work, a waiver of the registration fee is given. The awardee is required to write a report and submit it to the Executive Council of the ISB.

Requirements

The Promising Young Scientist award is to recognize superior research indicative of future promise in a single area of Biomechanics. The candidate must be a member of the ISB, be at a relatively early stage of his or her scientific careers in Biomechanics. Each candidate must submit his or her full curriculum vitae and identify at least two first author full articles in peer reviewed scientific journals that he or she has written in a single area of Biomechanics and provide interpretative summaries describing the contribution of each article. Applications for this award are to be sent to the Jury chairman, Leendert Blankevoort, PhD.

Time schedule

Submission of application to the jury chairman:

January 31, 1999 (deadline)

Decision and notification: March 31, 1999

Presentation of the Award: August 13, 1999

For further information please contact:

Leendert Blankevoort, PhD

Orthopaedic Research Laboratory

800 Orthopedie

University of Nijmegen

P.O. Box 9101

NL-6500 HB NIJMEGEN

The Netherlands

tel. +31 24 3616959

fax +31 24 3540555

Email: L.Blankevoort@orthp.azn.nl

NOVEL Award for Foot Biomechanics

The International Society of Biomechanics (ISB) has received an award offer of US\$10,000 from NOVEL GmbH for a competition to attract outstanding papers in the area of Foot Biomechanics. The award will be presented at the XVIIth ISB Congress in Calgary, August 1999 and the first author of the winning paper will present the NOVEL Invited Lecture at the Congress.

Abstracts are solicited for this competition with the call for papers for the XVIIth ISB Congress. Any scientist may submit an abstract for the award, including non-ISB members. From the abstracts submitted for this competition, 6 abstracts are selected and nominated for the award. The authors of the 6 selected abstracts will be requested to submit a full-length 20-25 page double-spaced paper. The paper must describe a study related to foot biomechanics. A blind review of entries will be conducted by a jury of senior members of the ISB who are experts in foot biomechanics. Individuals must include a cover letter with their abstract submission clearly indicating they would like to be considered for the Novel Award.

Time schedule

Submission of abstract to Congress Office:

January 31, 1999 (deadline)

Notification of the nomination: March 24, 1999

Submission of full manuscripts to jury chairman:

April 24, 1999 (deadline)

Decision and notification: May 15, 1999

Presentation of the Award: August 13, 1999

Additional information about the award and the XVIIth ISB Congress can be obtained from the Congress website.

www.kin.ucalgary.ca/isb99/

ISB Student Grant Guidelines

Student members of ISB are eligible for the following three grants. A number of competitive grants will be awarded each year. All grant amounts are shown in US dollars.

The Matching Dissertation Grant Program:

There will be several competitive grants of \$2000 made for doctoral dissertation research. A condition is that the applicant will have a commitment from her/his institution or another source to provide a further matching \$2000. This program is applicable to those who are doctoral candidates and are seeking assistance with costs of their dissertation research. Applications should include the following:

- a) a 3 page summary which includes the purpose, reference to key related literature, study design, methods, timetable for the measurements and budget.
- b) CV of the applicant: 2-3 pages in length (include list of publications, current grade point average, results of any standardized tests that the applicant has taken (ie. GRE)).
- c) a document from her/his institution or other source which ensures provision of the matching \$2000
- d) a one page recommendation from the dissertation advisor who must also be an ISB member at the time of application.

Applications are to be received by January 15, 1999. Notification to applicants will be by March 25, 1999. Recipients will present results at the ISB Congress and acknowledge ISB support in any publications. A report to the council will include accounting of how funds were spent. Recipients will be encouraged to publish their work in one of the ISB-affiliated journals.

The International Travel Grant Program:

In order to allow student members to travel abroad to experience science in other cultures, we will offer several grants of \$2000 for travel which is related to biomechanics research. A report on the accomplishments during the trip will be expected by the Executive Council. Applications should include:

- a) 3 page proposal which includes the purpose of the visit; timetable, activities to be involved in, the total budget for the visit (including other financial assistance, etc.)

- b) CV of the applicant: 2-3 pages in length (include list of publications, current grade point average, results of any standardized tests that the applicant has taken (ie. GRE)).
- c) a document from the host institution verifying support for the visit
- d) a recommendation letter of support for the travel from the applicant's supervisor who must also be an ISB member at the time of application.

Applications are to be received by January 15, 1999. Notification to applicants will be by March 25, 1999. Recipients will submit a brief report to the committee which will be published in the Newsletter.

The Congress Travel Grant Program:

This grant is offered only in the years of ISB Congress, therefore, this grant will be offered in 1999. ISB Congresses provide a wonderful opportunity for exchange of information and for meeting other scientists who can be influential in the development of 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 several travel grants of \$1000 to student members who will be presenting their research results at ISB Congresses. Applications should include the following:

- a) the proposal should have a maximum length of 3-4 pages including the abstract and the info of its acceptance, the total budget for the travel etc.
- b) CV of the applicant: 2-3 pages in length (include list of publications, current grade point average, results of any standardized tests that the applicant has taken (ie. GRE)).
- c) a one page recommendation from the supervisor who must also be an ISB member at the time of application.

Recipients will submit a brief report to the committee which will be published in the Newsletter. Applications are to be received by January 15, 1999. Notification to applicants will be by March 25, 1999.

Grant applications should be mailed to:

Dr. Mary Rodgers
 Department of Physical Therapy
 University of Maryland
 100 Penn Street
 Baltimore, MD 21201 USA
 Email: mrodgers@physio.ab.umd.edu
 Telephone: (410) 706-0840
 Fax: (410) 706-6387
 Student Grant Committee:
 Dr. Mary Rodgers
 Dr. Keijo Häkkinen
 Dr. Gisela Sjøgaard
 Dr. Peter Cavanagh
 Dr. Christopher L (Kit) Vaughan
 Student members who do not plan to apply for grants, but would be interested in serving on the student grants committee are asked to contact Dr. Rodgers.

From the World Council on Biomechanics

The 3rd World Congress on Biomechanics was held this past summer at Hokkaido University in Sapporo, Japan. During the Congress the World Council on Biomechanics elected its new members and officers. They are as follows.

Officers

Honorary Chair: Y.C. Fung
 Chair: Savio L-Y. Woo
 Vice Chair: Kozaburo Hayashi
 Secretary: Leendert Blankevoort
 Treasurer: James C.H. Goh

New Council Members:

Leendert Blankevoort
 Morton Friedman
 Mark Grabiner
 Roger Kamm
 Yuji Matsuzaki
 Christian Oddou
 Masaaki Sato
 Geert Schmid-Schonbein
 Avraham Shitzer
 Robert Schroter
 Takami Yamaguchi

During the course of the Congress the University of Calgary was announced as the site of the 4th World Congress on Biomechanics, August 3-8, 2002. The conference organizers are Benno Nigg (uhein@ucalgary.ca) and Ronald Zernicke (zernicke@acs.ucalgary.ca)

Job Market

The Job Market may be accessed via:

<http://www.lri.ccf.org/isb/jobs/>

The site, maintained by Tiffany Orlando holds current and past position announcements in the following categories. Faculty/Lecturer, Postdoctoral, Research Assistantships, Career/Other, Graduate Assistantships and Postgraduate Fellowships

Upcoming Meetings, Workshops, Etc.

January

17th ASMI Injuries in Baseball Course, 21-24 Jan 1999, Birmingham, Alabama. Contact J. Drew, American Sports Medicine Institute, 1313 13th Street South, Birmingham, AL 35205, Tel: 205.918.2135, Fax: 205.918.0800, Email: judyd@asmi.org

February

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

March

4th Annual Meeting of the Gait and Clinical Movement Analysis Society, 10-13 March, 1999, Dallas, Texas, Contact: F.L Buczek, Jr, PhD, Program Chair, 1999 GCMA Annual Meeting, Shriners Hospitals for Children 1645 West 8th Street, Erie, PA 16505, USA, fbuczek@erie.net

April

Advances in Tendon Lesions, Injuries and Repair, 2-3 Apr 1999, Genval (Brussels), Belgium, Contact: F. Schuind, MD, PhD, Department of Orthopaedics, Erasme University, Hospital, 808 route de Lennik, B-1070 Brussels, Belgium, Tel: + 32.2.555.68.44, Fax: + 32.2.520.35.56, Email: fschuind@ulb.ac.be

18th Southern Biomedical Engineering Conference and 2nd International Conference for Ethical Issues in Biomedical Engineering, 2-4 April 1999, Clemson University, Clemson, South Carolina. Contact; S. Saha, PhD, Director, Bioengineering Alliance of South Carolina, 313 Rhodes Research center, Clemson University, Clemson, SC 29634-0906, Tel: 864.656.7603, Fax: 864.656.4466, Email: amarand@clemson.edu

1st International Conference on Science and Technology in Climbing and Mountaineering; 7-9 April 1999, University of Leeds, UK. Contact: N. Messenger PhD, STCM conference, Centre for PE and Sports Science, University of Leeds, Leeds LS2 9JT,

UK. Tel: +44 (0)113 233 5080, Fax: +44 (0)113 233 5083. Email: Climbing.conf@leeds.ac.uk, http://www.leeds.ac.uk/sports_science/conference/climbingsci99.html

1st International Conference on Science and Technology in Climbing and Mountaineering; 7-9 April 1999, University of Leeds, UK. Contact: N. Messenger PhD, STCM conference, Centre for PE and Sports Science, University of Leeds, Leeds LS2 9JT, UK. Tel: +44 (0)113 233 5080, Fax: +44 (0)113 233 5083. Email: Climbing.conf@leeds.ac.uk, http://www.leeds.ac.uk/sports_science/conference/climbingsci99.html

June

Russian Biomechanics Conference - 1999, 2-4 June 2-4, 1999, Ust-Kachka, Russia. Contact: Y. Nyashin, PhD, Tel: 3422 39 13 78, Email:

nyashin@tex.icmm.perm.su or J. Vossoughi, PhD, Tel: 202.274.5175, Email: vossoughi@classic.msn.com
First World Congress of Science and Medicine in Cricket, 14-17 Jun 1999, Newport, Shropshire, Contact: N. Stockill, PhD, Tel: 01952 670185, Fax: 01952 820924, Email:

nigelstockill@lsihpc.demon.co.uk

4th Summer Bioengineering Conference, 16-20 June, 1999, Big Sky, Montana. Contact: V.K. Goel, PhD, Iowa Spine Research Center, Department of Biomedical Engineering 1410 EB, College of Engineering, University of Iowa, Iowa City, IA 52242, Fax: 319.353.7516/319.335.5631, Email: Vijay-Goel@uiowa.edu, www.asme.org/divisions/bed/summer99.html

July

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
Bone and Tissue Mechanics Course, 19-23 Jul, 1999, Centro Internazionale di Scienze Meccaniche, Palazzo del Torso- Piazza Garibaldi, 18, 33100 UDINE (ITALY) Contact: Tel: +39.432.248511, Fax: 248.550, www.uniud.it/cism/homepage.htm

August

ISB Technical Group on Footwear Biomechanics Fourth Symposium, 5-7 Aug 1999, Greenwood Inn, Canmore, Canada, Contact: www.uni-essen.de/~qpd800/FWISB/Canmore99.html
ISB99 The University of Calgary, 8-13 Aug, 1999, Contact: M. Stroh, Conference Mgmt. Services, 1833 Crowchild Trail N.W., Calgary, AB, CANADA

T2M 4S7, Tel: (403) 220-6229, Fax: (403) 284-4184,
Email: mastroh@acs.ucalgary.ca
Second conference of the International Shoulder
Group, 15 -16 August 1999, Calgary, Canada, (ISG is
an official working group under the ISB) Contact: [www-
mr.wbmt.tudelft.nl/shoulder/isg/isg.html](http://www-mr.wbmt.tudelft.nl/shoulder/isg/isg.html)
Progress in Motor Control - II: Structure-Function
Relations in Voluntary Movements, 19-22 Aug 1999,
Penn State University. Contact: M.L. Latash, PhD, Rec.
Hall 267-L, Department of Kinesiology, Penn State
University, University Park, PA 16802,
Tel: 814.863.5374, Fax: 814.865.2440, Email:
mll11@psu.edu

September

11th Hungarian Medical Engineering Conference and
the 2nd Hungarian Clinical Engineering Conference,
BUDAMED '99, Budapest, 12-14 September, 1999.
Contact: varady@fsz.bme.hu
From basic motor control to function recovery-
concepts, theories and models- present state and
perspectives, 22 to 26 Sep 1999, Organised at the Black
Sea, near Varna (Albena or Golden sands) in Bulgaria.
Contact: N Gantchev, UPR Neurobiologie et Movements,
CNRS, 31 Chemin Joseph-Aiguier, 3402 Marseille cedex
20 FRANCE, Phone 33 4 91 16 41 00, Fax 33 4 91 77
50 84, gantchev@lnf.cnrs-mrs.fr

October

23rd Annual Meeting of the American Society of
Biomechanics, 21-23 Oct 1999, University of
Pittsburgh, Pittsburgh, PA, USA. Contact: J-K Suh,
PhD. Musculoskeletal Research Center, Department of
Orthopaedic Surgery, University of Pittsburgh, E1641
Bioscience Tower, Pittsburgh, PA, USA, Tel:
412.648.1985, Fax: 412.648.2001, Email: jsuh+@pitt.edu

November

European Medical & Biological Engineering
Conference, EMBEC'99, Vienna, Austria, 4-8
November 1999, <http://www.univie.ac.at/EMBEC99/>

2000

2nd International Congress on Skiing and Science in
St. Christoph/Arlberg, Austria, 9-15 Jan 2000. Contact:
Hermann Schwameder, Secretary General, Email:
hermann.schwameder@sbg.ac.at

2002

3rd World Congress of Biomechanics, University of
Calgary, Calgary, Alberta, Canada.

Places to "Go"

◆ ISB '99 www.kin.ucalgary.ca/isb99/
◆ Ergonomics and Human Factors sites
Human Factors and Ergonomics Society
www.hfesw.org/
International Ergonomics Society
www.louisville.edu/speed/ergonomics/international_ergonomics_association.html
OSHA ergonomics page
www.osha-slc.gov/SLTC/ergonomics/

Report of the XIth International Biomechanics Seminar

The XIth International Biomechanics
Seminar (IBS'98) was held in Wroclaw, Poland in
September of this year. It was organised jointly by
the Academy of Physical Education, Wroclaw,
Poland, the Chalmers University of Technology,
Göteborg, Sweden and the Polish Society of
Biomechanics under the chairmanship of Prof.
Stefan Kornecki.

The theme of the two-day seminar was the
problem of muscular synergism with special
emphasis on stabilising functions of skeletal
muscles. It comprised four sessions devoted to
various aspects of the muscle force sharing
problem, each starting with a lecture of a
distinguished invited speaker and containing four
to five free communications. The lecturers were
Necip Berme (Ohio State University), Roger
Enoka (University of Colorado), Herbert Hatze
(University of Vienna) and Walter Herzog
(University of Calgary).

A book of proceedings containing full texts of
the four invited lectures and free communications
by authors representing Belgium, Bulgaria, Czech
Republic, France, Israel, Latvia, Netherlands,
Poland, Sweden and United Kingdom was
published just before the seminar. More info on
the seminar and the proceedings is available at:
<http://netra.awf.wroc.pl/~as/ibs98/>
*We thank Adam Siemienski, Secretary, XIth Int'l.
biomechanics Seminar, for this submission.*

Update your Vocabulary

- 1) Arachnoleptic fit (n.) The frantic dance performed just after you've accidentally walked through a spider web.
- 2) Beelzebug (n.) Satan in the form of a mosquito that gets into your bedroom at 3 in the morning and cannot be cast out.
- 3) Bozone (n.) The substance surrounding stupid people that stops bright ideas from penetrating. The bozone layer, unfortunately, shows little sign of breaking down in the near future.
- 4) Cashtration (n.) The act of buying a house, which renders the subject financially impotent for an indefinite period.
- 5) Caterpallor (n.) The color you turn after finding half a grub in the fruit you're eating.
- 6) Decaflon (n.) The grueling event of getting through the day consuming only things that are good for you.
- 7) Dopelar effect (n.) The tendency of stupid ideas to seem smarter when you come at them rapidly.
- 8) Extraterrestaurant (n.) An eating place where you feel you've been abducted and experimented upon. Also known as an E-T-ry.
- 9) Faunacated (adj.) How wildlife ends up when its environment is destroyed. Hence faunacatering (v.), which has made a meal of many species.
- 10) Foreploy (n.) Any misrepresentation or outright lie about yourself that leads to sex.
- 11) Grantartica (n.) The cold, isolated place where art companies dwell without funding.
- 12) Hemaglobe (n.) The bloody state of the world.
- 13) Intaxication (n.) Euphoria at getting a tax refund, which lasts until you realize it was your money to start with.
- 14) Kinstirpation (n.) A painful inability to move relatives who come to visit.
- 15) Lullabuoy (n.) An idea that keeps floating into your head and prevents you from drifting off to sleep.

Thanks to Rachel Skoss, University of Western Australia for this submission

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. We presume the content reflects somebody's philosophy and opinion at some time. Naturally, items such as *Letters, Special Articles, Affiliate Society News, Laboratory Features, Reports, or Announcements of Meetings, Conferences, and Reviews* of relevant conferences and other biomechanics-related information are desirable and may be considered. *Thesis Abstracts* can be published if they do, or do not meet any criteria. For example, Thesis abstracts that provide an Introduction that includes the rationale and hypotheses of the study, description of the methods, the key results, and important conclusions are considered desirable. 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 it's important to have guidelines nevertheless. Material may be submitted electronically or on a computer disk as a text-only file, and must be in some form of English. Hard copy submissions of anything are acknowledged telepathically and subsequently placed in a recycle bin. Submission is not a guarantee of a timely appearance in the Newsletter.

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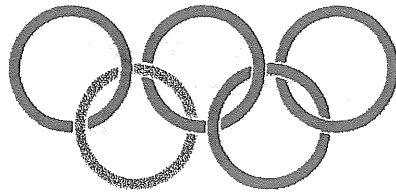
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IOC OLYMPIC PRIZE

ENDOWED BY

 **PARKE-DAVIS**

The IOC Olympic Prize By Benno M. Nigg

THE IDEA OF THE IOC OLYMPIC PRIZE

Movement and mobility are some of the most precious aspects of human life. Imagine a person that cannot move! A person that cannot play golf with friends, cannot go for a hike with family or friends, or cannot visit the next-door neighbors for a chat. Mobility and movement are extremely important for the quality of life of humans. Without the ability to move, life can be very difficult.

Movement is important in all situations of life, from childhood to old age to high performance athletics.

Mobility and movement are equally important for children, adolescents, athletes and the elderly. A young child learns to move and engraves movement patterns into the motor control system. If these patterns are correct, early degenerative disease such as osteoarthritis may be avoided.

Adolescent girls and boys strengthen their muscles, bones, ligaments and tendons by providing the necessary stimuli during movement, exercise and sport. Bone formation in girls, for instance, is maximal during this time and a "bone bank" may be established due to appropriate sport activities to reduce the risk of osteoporosis.

Athletes expose their bodies to high and repetitive loading situations. This loading may cause damage to the body. This damage can be

avoided if training and equipment are well controlled.

Elderly people want to enjoy their retirement age by being physically active, playing games, and spending time with their grandchildren. To do so, they need to be mobile.

Consequently, the *understanding of factors influencing mobility and movement* and resultant loading of the human body is important. Scientific research studying movement, exercise and sport can contribute substantially to the improved understanding of mobility and movement. Its importance is growing with the increasing life expectancy of humans.

The activities of the International Olympic Committee (IOC) center around all aspects of movement, exercise and sport. The IOC is interested in high performance sport, physical activities for children, adolescents, adults and the elderly, exercise and sport in developing countries, history of exercise and sport, health and well-being due to physical activity and sport, and many other facets of movement, exercise and sport.

The IOC Medical Commission was and is often in the limelight because of athlete doping cases. However, the IOC Medical Commission has many other less well-known activities. Thanks to the initiative of its Chairman, Prince Alexandre de Merode, the IOC Medical Commission has many groups that concentrate on the *positive aspects* of movement, exercise

and sport. In 1987, one such group, the Subcommittee for Biomechanics and Physiology, wanted to somehow acknowledge the importance of science related to movement, exercise and sport.

The discussions the Subcommittee for Biomechanics and Physiology had resulted in two major project proposals: First, to establish an IOC World Congress for sciences related to movement, exercise, and sport. Second, to establish a highly prestigious prize for science related to movement, exercise and sport, the **IOC OLYMPIC PRIZE**.

Under the leadership and guidance of Prince Alexandre de Merode, chairman of the IOC Medical Commission, selected members of this Subcommittee went to work to develop the two ideas. Dr. Charles Dillman provided leadership for the IOC World Congress and acts as scientific chair of all IOC World Congresses. Dr. Benno M. Nigg provided leadership for the IOC Olympic Prize and acts as the chair of the Selection Committee for the IOC Olympic Prize.



Prince Alexandre de Merode,
Chairman
of the
IOC Medical Commission

photo from
www.olympic.org/family/ioc/index.html

The first IOC World Congress was organized by Dr. Charles Dillman in 1989 in Colorado Springs, Co. The development of the IOC Olympic Prize took longer since a sponsor had to be found. The initial contact with Parke-Davis, a Warner-Lambert division, was established in 1992 following unsuccessful initial contacts and discussions with several other world-leading companies. After several meetings between representatives of Parke-Davis (Mr. Wayne Dickerson) and the IOC Medical Commission (Drs. Patrick Schamasch, Richard Nelson, Charles Dillman, and Benno M. Nigg) an agreement between Parke-Davis (Lodewijk

de Vink, president and COO of Warner-Lambert) and the IOC Medical Commission (Prince Alexandre de Merode) was signed and announced during the 1994 Olympic Winter Games in Lillehammer. Currently, Parke-Davis is the exclusive sponsor of the IOC Olympic Prize and all other functions of the IOC Medical Commission which relate to movement, exercise and sport sciences (MESS). The IOC Olympic Prize is awarded each Olympic Game year.

The IOC Olympic Prize is an exciting development for the field of sciences related to movement exercise and sport (MESS) and for anyone who loves and supports mobility and longevity of life.

THE IOC OLYMPIC PRIZE

The IOC Olympic Prize honors important findings resulting from outstanding basic and/or applied research related to human movement, exercise and/or sport. These findings must represent a significant innovation, contribute to the betterment of humankind, and have significant impact upon science, health, and/or society.

The IOC Olympic Prize consists of



- a gold medal
- a diploma of excellence
- a cash award of \$US 500,000

The IOC Olympic Prize is awarded for work in four groups of science: medical, biological, physical, and psychological. Examples of research to be considered include (a) the understanding of the healthy development of the human body and its main components, (b) the effect of exercise on health, wellness and quality of life, (c) the prevention of injuries in movement, exercise and sport, and (d) the improvement and optimization of physical

performance through enhanced understanding of the functioning of the human body for all age groups.

The winner is announced during a banquet in New York about 6 to 8 weeks before the start of the Olympic Summer or Winter Games. The gold medal is awarded during the Opening Ceremony of the IOC Session before the Games.

EFFECTS OF THE IOC OLYMPIC PRIZE

The IOC Olympic Prize was initially (for 1996 and 1998) US\$ 250,000 and will be US\$ 500,000 for the year 2000. This substantial sum, the public announcement of the winner, and the award ceremony has a substantial influence on the development of sciences dealing with movement, exercise and sport. Specifically, the IOC Olympic Prize:

- improves the recognition for research on movement, exercise and sport
- attracts established scientists to study these important questions
- attracts brilliant young scientists into the study of movement and mobility.

THE FIRST WINNERS

The first prize, the 1996 IOC Olympic Prize, was awarded to *Dr. Jeremy N. Morris and Dr. Ralph S. Paffenbarger, Jr.* for their pioneering studies demonstrating how exercise reduces the risk of heart disease. The research findings of Drs. Morris and Paffenbarger changed the practice of medicine and inspired the fitness revolution. The ground-breaking work of these two leading epidemiologists has brought respect to research in the area of health and fitness and inspired additional studies that have contributed enormously to providing the relationship between physical activity and a reduction in the incidence of coronary heart disease.

Dr. Morris was the first epidemiologist to offer scientific support for the (at that time revolutionary) hypothesis that regular physical activity reduces the risk of coronary heart disease.

Dr. Paffenbarger was the first to study risk factors and life habits of male graduates of the University of Pennsylvania and Harvard University. He found that physical activity is a relevant factor in reducing the risk of hypertension, non-insulin-dependent diabetes, some forms of cancer, and premature death in general.



The winners of the first IOC Olympic Prize, Drs. Morris (left) and Paffenbarger (middle) with the winner of the second IOC-Olympic Prize, Dr. Woo (right).

The second prize, the 1998 IOC Olympic Prize, was awarded to *Savio L. Y. Woo, Ph.D.* for his pioneering contributions to the understanding of the properties of connective tissues, the effects of exercise on tissue properties, and the possibilities for repair of injured tissues. His work had a significant effect on basic research in this area as well as on the medical treatment of ligament injuries, injuries that occur frequently in physical activities. A large number of individuals benefited directly from his research.

A more detailed description of the research work of these prize winners will be presented in one of the next publications on the IOC Olympic Prize.

TIMETABLE FOR THE IOC OLYMPIC PRIZE 2000

December 1998

Meeting: Selection Committee in Lausanne.

Finalizing the format for nominations for the 2000 Prize.

March to June 1999

Information on nomination procedure published in scientific journals and newsletters.

September 1, 1999

Deadline for submission of nomination packages to the headquarters of the IOC Medical Commission in Lausanne, Switzerland.

August 2000

Announcement of winner during a special IOC Olympic Prize Function in New York.

September 2000

Medal Ceremony during the Opening Ceremony of the IOC Session in Sydney, Australia.

ADDITIONAL INFORMATION

Additional information concerning the IOC Olympic Prize can be found at:

The IOC Olympic Prize web site
http://www.olympic.org/FAMILY/ioc/medical/olyprize1_e.html

The Parke-Davis IOC Olympic Prize web site
http://www.parke-davis.com/version_4/iocprize.html

Further information can be received from:

Benno M. Nigg, Dr.sc.nat.
Chair: Selection Committee, IOC Olympic Prize:
Human Performance Laboratory
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Calgary, Alberta, Canada, T2N 1N4
Fax: 403-284-3553
E-mail: uheinz@ucalgary.ca

IOC World Congress on Sport Sciences By Charles J. Dillman

In 1988, the IOC Medical Commission decided to develop a series of World Congresses on the scientific aspects of sport that would

further the growth of this young scientific field. The First Congress was conducted in Colorado Springs in 1989, with subsequent programs being organized in Barcelona (2) 1991, Atlanta (3) 1995, and Monaco (4) 1997.

The purpose of the World Congress is to provide a forum for leading scientists to exchange ideas about current research and to disseminate new information about human performance to practitioners who are involved in developing athletes for international and Olympic competitions. The field of sport sciences is segmented into four subdisciplines: medical, biological, physical and psychological sciences.

The next program, the Fifth IOC World Congress for the Science of Movement, Exercise, and Sport, will be held in Sydney, Australia, from October 31 to November 5 in 1999.



FIFTH IOC WORLD
CONGRESS
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FIFTH IOC WORLD CONGRESS FOR THE SCIENCE OF MOVEMENT, EXERCISE, AND SPORT

Endowed by Parke-Davis
In Conjunction with the Australian Conference
of Science and Medicine in Sport

31 October - 5 November, 1999

Sydney Convention and Exhibition Centre,
Sydney, Australia

The IOC World Congress will combine the very best in science and medicine related to movement, exercise and sport with the warmth and hospitality of Sydney - the host city of the 2000 Olympic and Paralympic Games.

The International Olympic Committee's Medical Commission, the Sydney Organizing Committee for the Olympic Games, and Sports Medicine Australia invite you to attend this special Congress.

Under the theme of "The Science and Medicine of Skilled Performance: Optimization, Injury Prevention and Rehabilitation," the world's leading exercise and sport scientists and practitioners will present their research - theoretical, applied and clinical - in a spectacular setting, the Sydney Convention Centre in beautiful Darling Harbour. Further highlights include the Opening Ceremony/Cocktail Party, Congress Dinner, Olympic Venue Tour, Sports Afternoon, and optional tours in and around Sydney.

The Congress also offers a unique opportunity for sport and team healthcare professionals to meet representatives of SOCOG's Medical and Doping Control Programs to discuss planning for the Sydney 2000 Olympic and Paralympic Games.

PROGRAM HIGHLIGHTS

Professor Savio Woo, Ph.D., from the Muscle Research Center, University of Pittsburgh and winner of the prestigious IOC Olympic Prize, will give the opening presentation at the Congress.

Keynote and Invited Speakers

Professor Ed Coyle, USA
Professor Bente Pedersen, Denmark
Professor Cy Frank, Canada
Professor Richard Lieber, USA
Professor Joachim Mester, Germany
Dr Jos de Koning, Netherlands
Professor Simon Gandevia, Australia
Professor Lew Hardy, UK

Symposia

Articular cartilage repair
Keeping people physically active (1): Motivation through the lifespan

Strategies to enhance fatigue resistance
Research on muscle mechanics
Ethics in sport
Women in the Olympic Games
Clinical and physiotherapy symposia

Workshops

Application of muscle mechanics in sport
Keeping people physically active (2): Public health programs
Supplements to enhance performance: The evidence?
Biomechanics feedback for the elite athlete
Workshops in sports medicine, sports physiotherapy, sports podiatry and sports dietetics.

Free Papers

Oral, video and poster presentations in the disciplines of medical, biological, physical & behavioral sport sciences

Parke-Davis Symposium

The Cardiovascular Dysmetabolic Syndrome: Diabetes/Insulin Resistance, Hypertension and Hyperlipidemia taking place on Sunday 31 October will be of particular interest to internists and general practitioners.

Important Dates

Abstract application forms & abstracts due by 15 May 1999
Early Bird registration closes 30 June 1999
Accommodation Bookings by 17 Sept 1999

Further Information on Congress

Congress Secretariat, Sports Medicine Australia
PO Box 897
Belconnen ACT 2616 AUSTRALIA
Ph: +61 2 6251 6944
Fax: +61 2 6253 1489
E-mail: smanat@sma.org.au

Visit the official Sydney 2000 Olympic Games web site: <http://www.sydney.olympic.org/>

ISB Membership News

New Members to ISB

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(NB: Student subs to the JAB are \$20 less)

(c) *Clinical Biomechanics* - \$AUS 118 _____

(d) *Journal of Electromyographic Kinesiology* - \$AUS 160 _____

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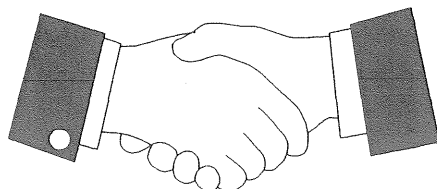
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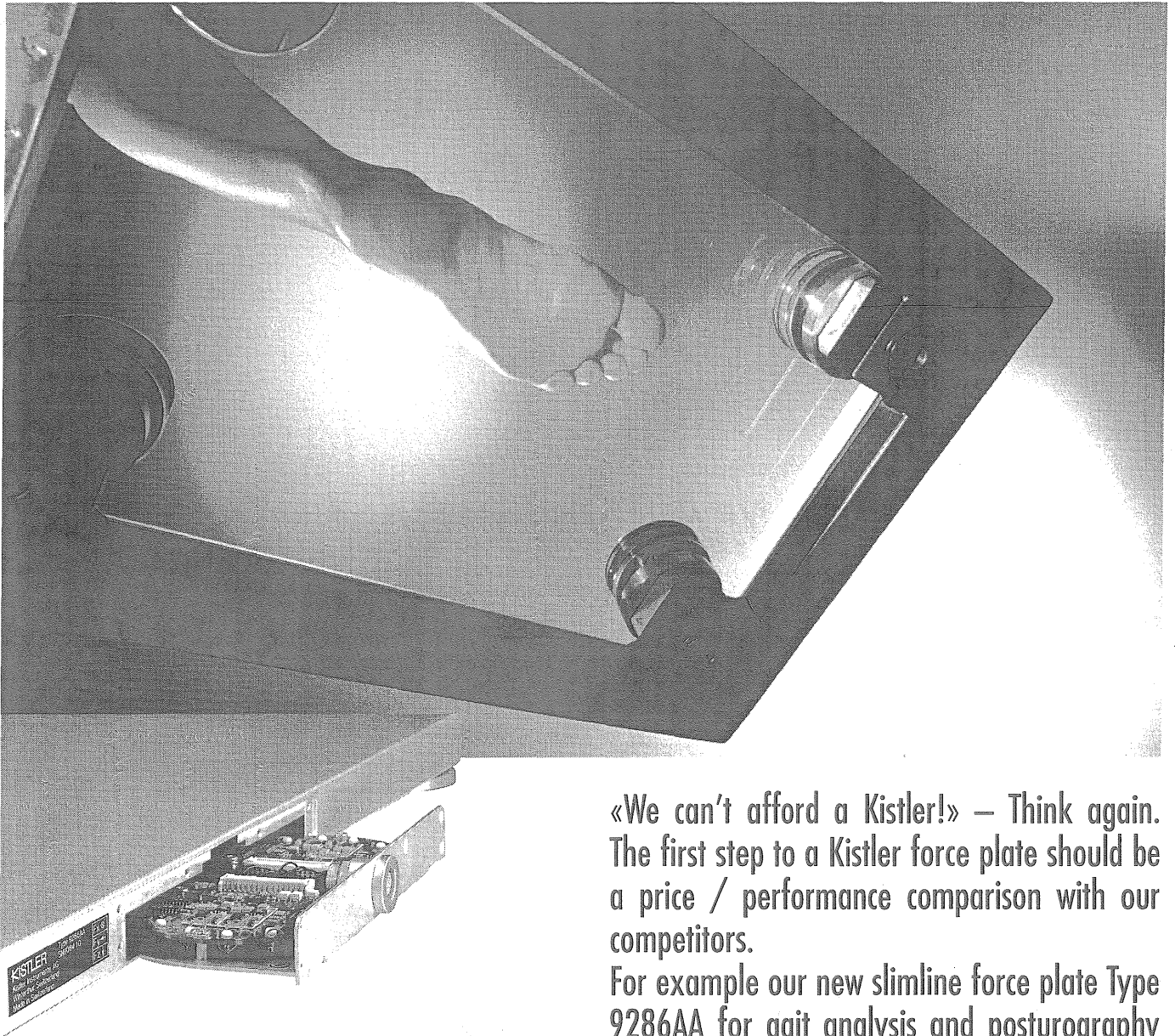
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