



International Society of Biomechanics Newsletter

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Editorial

As sportscasters are fond of saying about events past, the 10th International Congress on Biomechanics is now history. The Congress in Umea, Sweden was a resounding success and those who were fortunate enough to attend, and the Society as a whole, are indebted to Chairman Bengt Jonsson and his coworkers for their splendid efforts on our behalf.

We have had many fine Congresses in the past, but few of the organizers have been as blessed with outstanding facilities as in this case. The lecture theaters, where most of the oral presentations were made, occupied sectors of a central cylinder which itself stood within a large, rectangular room. Posters were set up on the walls of this room for the poster sessions and the exhibitors set up their displays around the perimeter. Movement from one session or activity to another was made extremely easy by this arrangement and it is hard to visualize an alternative that could offer better opportunities for interaction among the participants. All in all, a truly superb arrangement.

The program itself was also excellent with especial emphasis being given to occupational biomechanics, an area that has not always received the attention it deserves at our Congresses.

No comment on the Congress would be complete without some reference to the graciousness of our hosts. They had a great deal to do to satisfy the many diverse needs of the participants but were unfailingly courteous, energetic and helpful.

The results of the customary postal ballot, to determine the composition of the Executive Council that will guide the affairs of the Society over the next two years, was announced at the General Assembly Meeting held during the Congress. The election of the new Council marked the departure of several Council members who have given sterling service to the Society. **Paavo Komi** has held almost every office that one can hold in the Society. He was Congress Chairman for the 5th Congress in Jyvaskyla, Finland; Secretary-General from 1977-1981; and President and Past-President from 1981-1985. Although Paavo leaves the Council after 8 years of very close involvement with the administration of ISB affairs, his energy and skills will not be lost to the Society. He will continue to represent us in his role as Chairman of the Working Group Biomechanics of Sport.

Bengt Jonsson has also served the Society in several capacities. He was first elected to the Council in 1977 and re-elected in 1981. In that year, he accepted the position of Secretary-General a position he has held ever since. As already noted, Bengt also served as Congress Chairman of the 10th Congress in Umea. **Jan Clarys** was elected to the Council in 1979 and re-elected in 1983. In 1982, he assumed the editorship of the *ISB Newsletter* vacated by Keith Hayes. In this capacity he was responsible for the recent change in the format of the *Newsletter*. Jan has agreed to continue as editor of the *Newsletter* and will thus remain on the Council as an ex-officio member. Like Paavo, he will also continue to represent ISB on the Working Group Biomechanics of Sport, where he serves as Secretary-General. **Dave Winter** joined the Council in 1981 and was re-elected in 1983. For personal reasons he declined to stand for re-election this

year. Dave also served as Chairman of the 9th Congress in Waterloo, Canada. Finally, **Lutz Bauer** was elected to the Council in 1983 but, for personal reasons, declined to stand for re-election this year.

The Society is truly indebted to each of these men for their respective contributions. We hope they have enjoyed their involvement with the administrative side of the Society's affairs as much as their colleagues on the Council have enjoyed working with them. We look forward to their continuing support of the Society and its activities. See you all in Amsterdam!

The loss of Council stalwarts of previous years brings with it the opportunity to welcome the new Council members who will take their places. In this regard, I am very pleased to publicly welcome **Aurelio Cappozzo**, **Don Chaffin**, **Rik Huiskes** and **Erich Schneider** to the Council. I am also pleased to announce that Rik Huiskes has agreed to serve in the capacity of Secretary-General.

The installation of the new Council also involves another change that should not be allowed to pass without comment. **Benno Nigg**, after serving his two-year term as President of the Society, assumes the position of Past-President. At the start of his term as President, and on several occasions since, Benno stated that his major goal during his term of office would be to improve the scientific quality of the activities of the Society. That he has succeeded in this seemed clearly evident in the quality of the papers presented in Umea. They were not all excellent, of course, but the overall standard seemed to be unmistakably higher than ever before. There have also been several other noteworthy achievements under Benno's leadership. These include the initiation of promising contacts with other societies in biomechanics; an improved geographic and professional representation on the Council; the planned initiation of a scientific award for outstanding research in biomechanics; and the improved quality of the content and format of the *ISB Newsletter*. Our Society has indeed been fortunate to have had a man of Benno Nigg's talents at the helm these past two years.

Thank you Benno for your efforts on our behalf. And now, a few words about the future. Our Society faces many important challenges in the next few years. Chief among these, in my view, is a long-standing one - the challenge of providing the best possible forum for biomechanists irrespective of their specific areas of activity within biomechanics. In some areas (most notably sports biomechanics) the Society provides a forum for exchange among scientists that is without equal. In others (for example, occupational, orthopaedic and tissue biomechanics) steady increases in the numbers of leading biomechanics who have attended our Congresses over the last few years have led to a corresponding improvement in the quality of the forum that the Society provides. In others again, the Society has been largely unsuccessful in attracting leading scientists. As a direct consequence of all this, much remains to be done before the Society's biennial Congresses provide a forum to which all biomechanists can come to interact with the best people working in their specialized areas of biomechanics and - often the most exciting of all - with those in other areas of biomechanics.

There are several ways in which this worthy goal might be reached. One of these is by establishing close, mutually-beneficial relationships with other strong, well-organized societies that are also striving to provide a high-quality forum for research biomechanists. Among my goals as President of the Society for the next two years will be to continue the development and improvement of relationships with such national and regional societies. Already plans have been made for ISB and the American Society of Mechanical Engineers to jointly sponsor a one-day program at their 1987 meeting in Cincinnati; and for next year's meeting of the Council to be held in conjunction with either the combined Canadian and American Societies of Biomechanics meeting in Montreal, Canada or the European Society of Biomechanics meeting in West Berlin. (The most recent of these off-year meetings of the Council was held last year in conjunction with the European Society meeting in Davos, Switzerland.) In addition, the United States National Committee on Biomechanics is exploring the possibility of promoting a World Congress on Biomechanics in 1989 and ISB has made a formal offer to host this congress in conjunction with its 12th International Congress of Biomechanics to be held at the University of California, Los Angeles.

There are several other specific goals I intend to pursue during the next two years. Several national and regional societies are affiliated with leading journals in biomechanics to the benefit of their members and the advancement of the field of biomechanics. To these ends, we will also continue to explore the possibility of establishing formal links with the *Journal of Biomechanics* and, perhaps too, with other journals in the field. Finally, we will be working over the next two years to develop the operating procedures necessary to permit the awarding of the first Muybridge Medal to be made to a distinguished biomechanics researcher at our next Congress in Amsterdam.

Jim Hay
(President, ISB)



Bengt Jonsson, ex councilmember, ex secretary General and Chairman of the Xth Int. Congress of Biomechanics 1985. More than just a Job!

Special article

ICSSPE'S RESEARCH COMMITTEE: ROLE AND FUNCTION, PAST AND FUTURE

by
Dr. J. BORMS
Secretary-General

History

The Research Committee (R.C.) was officially established on September 27, 1960, during the first Plenary Session of the International Council of Sport and Physical Education (ICSPE)*. This session was held in the auditorium of the Food and Agricultural Organization of the United Nations during the Olympic Games in Rome. However, the roots of the R.C. are to be found long before this official inauguration. Special interest in the subject was aroused in 1952 at the scientific conferences held during the Olympic Games in Helsinki and later in Melbourne (1956).

In 1958 Professor Jokl, who was to become the R.C.'s first chairperson, elaborated in preparatory meetings the Council's scientific and technical programme stipulating that if there were to be a Research Committee it would have:

- (a) to maintain a high standard of scientific approach to sport and physical education;
- (b) to integrate scientific information pertaining to sport and physical education as obtained in various disciplines of research;
- (c) to integrate research in sport and physical education with research conducted in other disciplines, such as arts, science and humanities;
- (d) to present scientific facts and concepts in sport and physical education in a comprehensive manner;
- (e) to collaborate with the scientific and research branches of physical education organizations as well as with appropriate international scientific, cultural and related organizations (Jokl, 1968).

Prof. Jokl, Prof. Karvonen (Vice-President of the first Executive) and Dr. Simon (first Scientific Secretary) met in February 1960 at Squaw Valley, California, during the Olympic Winter Games where a programme for the quadrennial period 1960-1964 was decided.

Since Prof. Jokl was also a member of the nucleus group which drafted the text of "Objects of the Council" it is understandable why some of the Council's goals already at the beginning of its existence, were so heavily science-oriented.

The activities of the R.C. began with regional study seminars with the aim to collect results of research already carried out, and to discuss proposals for future research programmes in order to coordinate research work in different countries.

The establishment of ICSPE and of its Research Committee as a constitutional body, occurred in a period when sport science gained full momentum. Before the 1960's there existed few systematic organizations of "sport science". Physical education and sport were largely fields of study within education, and the scientific approach - if any - was mainly biomedical.

But during the sixties the interest in physical education and

sport as a subject of scientific research increased substantially. Scholars from various disciplines were attracted to the "sport science" more than ever before. In a recent paper, Hebbelinck (1983) attempts to explain certain reasons for this development which, of course, did not occur suddenly but took place in a gradual process. Physical education departments improved their academic status; sometimes the even obtained a faculty status; doctoral programmes were initiated and curricula and programmes with specific topics in sport science were expanded. Impressive funds for sport science research were made available and research committees were established within world organisations of physical education and sport, such as the R.C. of the International Council.

This R.C. was created in order to achieve the aims of the Organization in the field of science and research, as stipulated in Article 28 of the (original) Statutes:

- (a) to promote and support scientific work in sport and physical education in different countries;
- (b) to obtain and communicate concise information on research activities in various parts of the world;
- (c) to constitute a forum for the integrative study of cultural, humanistic and scientific aspects of sport and physical education;
- (d) to sponsor international congresses, seminars and colloquia in the field of research in sport and physical education;
- (e) to cooperate with the International Bureau of Documentation and Information as well as integrate the work of other bodies of ICSPE;
- (f) to cooperate with national and international organisations working in the field of research in sport and physical education.

Perhaps these goals were far too ambitious to be achieved by one body. But through its numerous congresses and an impressive production of scientific books in the prestigious Karger Series (to mention only those two accomplishments), the R.C. was a "trade mark" of ICSPE. Perhaps the two most important contributions to sport science of the R.C. in the 25 years of its existence were firstly its catalysing role in the formation of new sport science organisations (e.g. International Society of Biomechanics...) and secondly the establishment of a world-wide network of researchers and research societies.

The international congresses, seminars and conferences designed by, initiated and sponsored by, or held in collaboration with the R.C. dealt with an impressive variety of scientific disciplines and areas of concern. Because of their comprehensive character they yielded an new image of the sports sciences. Furthermore, valuable human relations were thus established. By creating the opportunity to bring together scientific leaders of sport science, international communication in our field was considerably intensified. Other major physical education organizations, such as FIMS, FIEP, and ICHPER were often integrated into the R.C.'s activities and virtually all recognized authorities who belonged to these bodies participated in one way or another in events held by or (co-)sponsored by the R.C.

Figure 1 depicts the internal structure of the R.C.

The organs of the R.C. function as follows:

The **General Assembly** is held every 4 years while there is an **Annual Session** (the 15th will be held in 1985) usually in connection with international seminars or, if possible, with meetings of ICSPE.

These annual meetings provide an opportunity to discuss short range plans and activities of the working groups (see further) and especially to exchange information. This information flow, however, is not supposed to be single-channelled. The R.C. itself needs input from all of its members. Regular contacts between the R.C. and other organizations or potential organizers of scientific meetings are thus essential for long-term planning. The General Assembly as well as the Annual Session may be attended by all members. The R.C. has four different membership categories.

- (a) **Ordinary Members** (a maximum of 15 persons)
- (b) **Delegated Members** (representatives from various associations, committees and working groups)
- (c) **Co-opted Members** (persons invited on an temporary basis to cooperate in the preparation and solution of specific topics)
- (d) **Corresponding Members** (In order to establish contacts with sport scientists in the different countries, an unlimited number of persons may become corresponding members. The are expected to have a doctoral degree and/or to be actively involved in research)

The **Executive Board and the President's committee** are responsible for the management of the R.C.'s routine activities.

Working Groups

The cornerstones of the R.C. and the bodies through which the Committee carries out its work are the so called Working Groups. They are not to be confounded with the "working committees" ("commissions de travail") of the original ICSPE statutes (Rome 1960), which later on were called "specialized committees" (Munich 1972), and since 1983 are named "committees". This is important to remember because from the diagram in the original statutes (Gauting/Munich 1960), depicting ICSPE's former structure, it looks as if the R.C. (a constitutional and permanent body such as the International Bureau of Documentation and Information and the IAKS) had a more direct link with the Executive than the working committees, while in the new statutes the R.C. is placed at the same level of all the other committees. In each case, the R.C. has had, and still has several working groups in such areas as exercise biochemistry ergometry, biomechanics, kinanthropometry, etc. Other committees (formerly working or specialized committees) of ICSPE have chosen a more autonomous constitution. Examples are the International Committee for Sociology of Sport, the International Committee for History of Sport and Physical Education etc....

Perhaps this development is debatable since one of the ultimate goals of the R.C. was to **integrate** alle research in sportscience.

There are currently four active R.C.'s Working Groups which are independently planning their own scientific programmes although the R.C.'s Executive Board is usually consulted and invited to assist in planning meetings:

- (a) **Research Group on the Biochemistry of Exercise**
(Chair: J. POORTMANS, Brussels)
- (b) **Working Group on Biomechanics of Sport**
(Chair: P. KOMI, Jyväskylä; Secretary: J.P. CLARYS, Brussels)
- (c) **Working Group on Ergometry**
(Chair: H. MELLEROWICZ, Berlin; Secretary: H. LOLLGEN, Limburg)
- (d) **Int. Working Group on Kinanthropometry, IWGK**
(Chair: J. BORMS, Brussels; Secretary: W.D. ROSS, Burnaby B.C.)

Other groups were established (as were most international sport science organizations) on the occasion of international meetings but were dissolved again. Either the interest in the topic declined after an initial enthusiasm and the group became less active (e.g. working group on physical activity and aging; working group on underwater medicine etc.), or the initial idea was never further cultivated (e.g. art, sport and aesthetics, physiology of exercise, sport of the handicapped).

The R.C. had identified or emphasized the importance of a number of new scientific disciplines and concepts such as **Record Physiology** (cfr. "The Physiological Basis of Athletic Records", edited by E. Jokl and P. Jokl, 1968), the **Role of Exercise in Internal Medicine, Exercise and Cardiac Death**, etc.

The R.C. has sometimes been criticized for its too large emphasis on the biomedical approach of sport science and its lack of a pedagogical approach. Although the R.C. has been aware of this and has always been determined to prevent a one-sided development of sport science, one may indeed wonder why until recently (Eugene 1984) no specific organization or working group was created within ICSSPE in such an important field as education. Hebbelinck (1983) explains this by the fact that several international organizations with membership mainly in the teaching profession of physical education have been working for many years (FIEP since 1923, ICHPER since 1958, IAPESGW since 1956 and AIESEP since 1962) in this domain and have, among other things, also promoted the scientific study of the teaching and educational processes. But even if the R.C. stimulates, promotes and supports new ideas and original research in the broad field of "sport science", it must be admitted too that the development of special areas, such as sport pedagogy, often depended on personal endeavors and ambitions of individuals, the "prime movers", who have been driving force behind an idea.

Scientific Publications

Besides a number of other scientific books (e.g. **International Research in Sport and Physical Education**, Jokl & Simon 1964) the R.C. has issued an impressive series of 18 monographs (Medicine and Sport Series, now named **Medicine and Sport Science**, thus reflecting the contemporary concepts of research in sport), published by Karger Switzerland and edited by E. Jokl (initiator) and M. Hebbelinck (from 1985 on M. Hebbelinck and R. Shepard). This unique series represents a most comprehensive collection of timely topics and updated scientific information on research in sport and physical education. The publication of the series is in line with the R.C.'s policy - since its inception - of integration results of investigations in specialized sectors of scientific studies.

The Philip Noel-Baker Research Prize

Each year ICSSPE, upon proposal by the R.C., awards the Philip Noel-Baker Research Prize to distinguished personalities who through both their scientific work and their contributions to ISCCPE's activities merit public recognition. The Prize, established on the occasion of the 80th birthday of ICSSPE's first President, has enjoyed considerable prestige throughout the world, and among its recipients are leading scientific authorities.

The Future

Time has come to think about the R.C.'s future role, espe-

cially since ICSSPE changed in 1983 its name in ICSSPE, International Council of Sport Science and Physical Education. Surely the pioneering time is over, but there are still untouched fields of research to be explored. Obviously with the considerable interest for and the tremendous expansion of research generally and particularly in sport science and the explosion of documentation, information and knowledge, it can be questioned whether a relatively small group such as the R.C. (operating even without a budget) will be able to cope in the future with the growing demands of world-wide coordination and support.

The new name of ICSSPE and its revised Statutes have focussed the attention to the role of the Research Committee. By stimulating its Working Groups to sponsor international gatherings, to publish monographs, to conceive new ideas, to advise ICSSPE, to stimulate and support initiatives of young or "established" colleagues and to strengthen the so important human link between researchers all over the world, the R.C. can remain a forum for the communication of scientific findings on sport and physical education.

Sources

Hebbelinck, M., **Organizations for Sport Sciences: Developments and Perspectives**, ICSSPE Review, 1983, VI, 13-17.

Jokl, E., **Report on Activities of Research Committee, Working Parties and Technical Agencies of International Council of Sport and Physical Education of Unesco during the period 1960-1968**. Mimeographed document, 35 pages, 1968.

ICSSPE, **Statuts, Adoptés par la Première Assemblée Générale à Rome, Rome le 12 septembre 1960**, Unesco Youth Institute, Gauting/München, 1960.

ICSSPE, **Statutes, Adopted by the 6th General Assembly of ICPSE-CIEPS, Munich, August 19, 1972**.

Ordinary Members	Delegated Members	Co-opted Members	Corresponding Members
		Annual Session & General Assembly	
		President's committee President First Vice-President Secretary-General	
		EXECUTIVE BOARD President 3 Vice-Presidents Scientific Secretary	
Research Group on the Biochemistry of Exercise	Working Group on Biomechanics of Sport	Working Group on Ergometry	Int. Work. Group on Kinanthropometry

Fig. 1 Internal Structure of the Research Committee.

Some Names and Dates

Presidents

1960-1974 E. JOKL (USA)

since 1974 M. HEBBELINCK (Belgium)

Secretaries-General

1960-1965 E. SIMON (Israël)

1965-1973 M. HEBBELINCK (Belgium)

1973-1974 M. NEMESSURI (Hungary)

since 1974 J. BORMS (Belgium)

Readers' Digest

Professor Tadeusz Bober
Director of Biomechanics Department at Academy of Physical Education WORCLAW, Poland

Comments on:

"Biomechanics: Are there substantive issues?"
by R.W. Norman

1. In the Newsletter No 18 there was published an interesting article by R.W. Norman raising several essential problems in our discipline. My compliments to the author and the editor for publishing that article as we were in great need of such discussion. That publication signifies that our Society and biomechanics as a scientific discipline have both matured. Let me express a few of my personal reflections, though.

2. Biomechanics and interdisciplinary research. Norman, Zernicke and Komi approve of the need for taking up interdisciplinary research, which I fully corroborate. Interdisciplinary research is generally more fruitful than the research limited to one discipline, providing it does not deal with a problem superficially.

First of all, it is worth remembering that biomechanics by its very nature is an interdisciplinary science. We often forget about it while the two components of the name of this discipline bios / life / and mechane / tool, mechanism / should be binding on us. The occasional persistence in considering biomechanics as a discipline where mechanics is used for the description and analysis of body movements is regrettably limited. I think that we should at least be aware of the fact that mechanical measurements ought to be completed with biological interpretation. It seems to be the first step that will facilitate the research in such interdisciplinary groups as were mentioned by Norman. We are aware of the fact that the training of the fact that the training of a biomechanist should be vast and, on the contrary, any one-sided experience will be a handicap. Nowadays, in various groups different solutions are introduced, eg special courses from mechanics to anatomy and physiology / Penn State University /, selection of various specialists for one laboratory, or, as in the case of M. Miyashita's Lab, establishing laboratories where elements of 3 disciplines: biomechanics, biochemistry and physiology make one entity.

3. Biomechanical theories and applied research. I think that at present applied research dominates and basic / fundamental / research is relatively scarce. I do not assert that it is wrong. However, I believe that basis research can bring us sooner to the understanding of general principles of human body movements, providing that there are such principles. Therefore, I enjoy the formulation of such substantive biomechanical issues as Norman suggested in his 3 examples. Let us consider the example of a shot-putter in action. He has to reveal maximum muscle strength and apply it to the shot at a definite point in definite time sequence. We know that a strong competitor is often not the one who gets a better result. When we begin our examination, the easiest task is to measure and describe the external mechanical parameters of movement. We have relatively good knowledge about strength training program and muscle mechanics. The most difficult one is to explain the art of using and applying the potential strength to the shot. It is impossible

to do that without enquiring into the feedback and interpretation of the relations between the muscle-bone-joint system and the central nervous system. By means of that example I would like to point out how complex the unity of biomechanical research is. Due to basis research we shall find a way to formulate biomechanical theories and apply them to the interpretation of the above mentioned problems. Without the conversance with such theories teaching motor skills, and sports technique in particular, will remain what it is now, that is it will be based on trial and error.



UNIVERSITY OF OTAGO

Dunedin, New Zealand

LECTURER IN BIOMECHANICS FACULTY OF PHYSICAL EDUCATION

Applications are invited for a tenure-track position in Biomechanics in the Faculty of Physical Education, University of Otago, New Zealand. Salary and level of appointment will depend upon qualifications and experience. A PhD is required. Tertiary teaching experience and demonstrated ability to attract research funds would be desirable. The successful applicant will be expected to collaborate with other staff in the development of joint teaching and research programmes in Biomechanics and the wider field of Kinesiology.

Salary: Lecturer - \$ NZ 23,622 - \$ NZ 27,928 per annum

A particularly well-qualified applicant may be considered for appointment at a higher level.

Intending applicants are invited to write for further information, available from the Secretary-General, Association of Commonwealth Universities (Appointments), 36 Gordon Square, London WC1H 0PF, or from the undersigned, P.O. Box 56, Dunedin, New Zealand.

Specific enquiries about the Faculty may be addressed to the Acting Dean, Professor L.R.T. Williams.

Applications quoting reference number A85/31 should be forwarded to London and Dunedin as soon as possible, but not later than 15 October 1985.

D.W. Girvan
Registrar

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The EDG System provides an optional Calibration Module to ensure linear test results and a higher degree of accuracy.

The Calibration Module provides the EDG System 1184 with a higher level of inter-test and intra-test accuracy. Each time a test procedure is run, the Calibration Module initiates a sensor "zeroing" or calibration curve for that particular set of sensors and test.



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For as little as \$9500 you'll get the hardware and software you need to obtain gait-related force/time data *in situ* when used in conjunction with your computer.

This special offer includes:

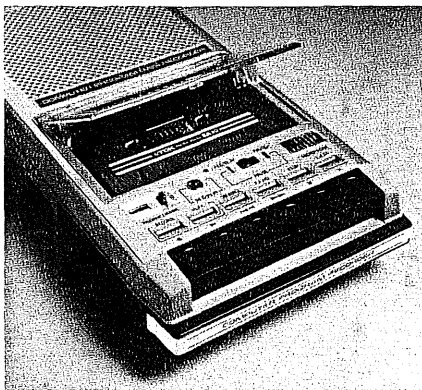
- Your choice of either the General Ambulation (2A) or Sport Activity (2S) software.
- The Model 2A or 2S Force Data Collector and Remote Activator. (If you order them at the same time, you'll get both the 2A and the 2S software and Force Data Collectors for an additional \$2,000. That's a savings of \$2,000 off the \$4,000 price of adding either package at a later date.)
- One set of Ankle-to-Waist Cable Assemblies with Permanent Sensors.
- One box of either 2A or 2S Disposable Sensors (12 subject tests).
- The optional Calibration Module and software are available at an additional cost.
- To support your EDG 1184, Langer has a technical staff available for consultation.

If you don't have access to an EDG-compatible computer, Langer is offering the EDG System plus an IBM PC or PC/XT for a special low price.



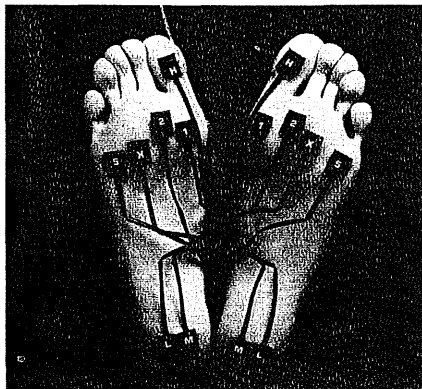
Force Data Collectors:

MODEL 2A—Used for general ambulation testing of cadences between 90 and 120 steps per minute. Acquires individual sensor data at 10 millisecond scan rate.
MODEL 2S—Used for tests during running or other sport activities. Acquires individual sensor data at 5 millisecond scan rate.



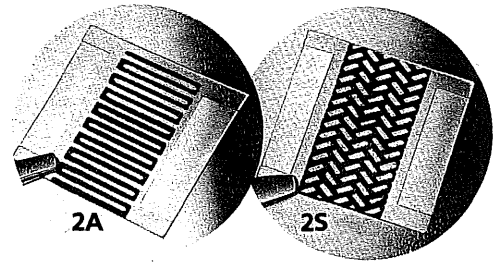
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The EDG System 1184 Multi-Test Recorder for recording test data at remote or satellite locations. The stored data can later be transferred to the main computer console for analysis.



Patented Disposable Force Sensors* measure segmental and sequential forces.

Disposable Force Sensors (pressure transducers) are quickly and easily applied to measure forces at predetermined key segmental locations on the plantar aspect of the subject's feet. Additional sensors may be placed on any desired location.



Disposable Sensors for general ambulation and sport activities.
 The EDG System 1184 utilizes thin, comfortable, Disposable Sensors that are available in two designs and force range formats: 2A to record ambulatory forces and 2S for the higher forces normally associated with sport activities.

Force data collection—indoors or out.

With the lightweight EDG System 1184 Force Data Collector, the subject is independent of any connections to stationary instruments and can move naturally. Remote radio activation permits testing at the specific desired moment in the subject's activity without influencing the subject's gait.

The Electrodynamogram System 1184 General Specifications:

Disposable Flexible Force Sensors:

2A—General ambulation
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Thickness: .004 inch

Sensor Force Range:

The Disposable Sensors measure forces between .1 kg/cm² and 8 kg/cm².

Permanent Force Sensor Lead:

Thickness: .0114 inch

Force Data Collector:

Scan Rate: 2A— 10 milliseconds
 2S—5 milliseconds

Dimensions: 6½" deep x 1½" high x 7¼" wide

Weight: 13 ounces

Operates from 2 internal 9 volt batteries.

Approvals: UL, UL544, FCC Class A, CSA and VDE

Additional technical specifications available upon request.

*The Force Sensor is patented. Registered U.S. Pat. No. 4,426,884.

The EDG in use.

"Our pilot experiences in using the Langer Electrodynamogram for Olympic sports has indicated to us that it has great potential for providing meaningful information in sports analysis."

CHARLES DILLMAN, Ph.D.
Director of Sports Science Programs
United States Olympic Committee

"One of the great attributes of the Langer [Electrodynamogram] System is that it quickly gives a visual display which can be easily looked at by the coach and the athlete. This quick feedback is vital in the application of sport-medicine studies to help the individual athlete."

STEVEN GASKILL
Sportmedicine/Coaches Education Director
U.S. Ski Team-Nordic Dept.

"It would appear that the EDG recording system does provide valuable information on selected aspects of dynamic foot function..."

BARRY T. BATES, Ph.D.,
Director, Biomechanics/Sports Medicine
Laboratory, University of Oregon

"THE EVALUATION OF FOOT FUNCTION
USING TWO MEASUREMENT SYSTEMS"

PRESENTED AT
HUMAN LOCOMOTION III

THE THIRD ANNUAL CONFERENCE OF THE
CANADIAN SOCIETY FOR BIOMECHANICS
AUGUST, 1984.

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Telephone: (051) 433-652
Telex: 214841 STARTK I



International Society of Biomechanics

MUYBRIDGE MEDAL

Call for Nominations

The International Society of Biomechanics (I.S.B.) has instituted a biennial award for major contributions to biomechanics. These contributions may take the form of scientific publications and/or methodological developments and/or applications.

The award -- named for Edward Muybridge (1830-1904), a pioneer in the photographic recording and analysis of human and animal motion -- will consist of a medal and a certificate to be presented at the I.S.B. Congress in Amsterdam.

Nominations for the award should be submitted to:

Dr. Donald W. Grieve
Chairman, Awards Committee
Royal Free Hospital Medical School
8 Hunter Street
London, WC1N1BP
ENGLAND

no later than **February 1, 1986**. Nominations may be made by individual members, the Executive Council or the Awards Committee of I.S.B.

Nominees must be paid-up members of I.S.B., or have made application for membership, at the time of nomination. A joint award may be made to two or three individuals associated with the work, but not to an organization. Officers of the Society, members of the Executive Council and members of the Awards Committee, are not eligible for nomination. Nominations should be in the form of a brief letter, in English, outlining the contributions to be considered as the subject for an award.

The Awards Committee will evaluate the nominations and select a short list of finalists who will be invited to submit an application for the award. All those making nominations and all finalists will be advised of the Committee's decision by **April 1, 1986**. Finalists will be invited to submit applications consisting of:

- a) A brief summary, in English, of the area/achievements to be considered as the subject for an award.
- b) A set of reprints or copies of the relevant publications. If books are involved, they will be returned after assessment, if requested.
- c) A statement concerning the contributions of persons named in publications who are not nominated for the award.
- d) The names of two persons who are familiar with the work and who may be consulted if the Awards Committee so decide.
- e) An assurance that, if successful, the applicant (or one of the applicants in the event of a joint application) will attend the award ceremony.

Applications must be submitted to the Chairman, Awards Committee by **July 1, 1986**. Those who submit applications will be advised of the Committee's decision by **February 1, 1987**.

Calendar of scientific events

1985

September 8 - 21, 1985

St. Moritz, Champfèr.

6. Internationalen Sportärztkongreß

September 19 - 23, 1985

Vienna, Austria, Int. "Sport and Leisure" Seminar on "Sport and Age"

(c/o ASKO - General sekretariat, A-1040 Wien, Margaretenstr. 13-15, Austria)

October 14 - 19, 1985

Dresden, GDR, "8th Int. IASI Congress on Sports information"

(c/o Dr. H. Bachmann, Zentrum f. Wissenschaftsinformation, Körperkultur u. Sport, Friedrich-Ludwig-Jahn-Allee 59, 7010 Leipzig, GDR)

November 09 - 12, 1985

Cologne, FRG, 9th Int. IAKS-Congress on "Sports, Swimming Pool and Leisure Facilities",

(c/o IAKS, Neusserstrasse 26, 5000 Köln 1, FRG)

November 19 - 20, 1985

London, E1 4NS United Kingdom. "Composites in Biomedical Engineering" First International Conference.

Dr. P.J. Hogg, Department of Materials, Queen Mary College, Mile End Road.

1986

June 25 - 27, 1986

Kuopio, Finland, "Articular cartilage and other joint structures in relation to loading and movement" - XVth Symposium of ESOA.

July 18 - 23, 1986

Glasgow, Scotland, "Conference '86: The VIIIth Commonwealth and International Conference on Sport, Physical Education, Dance, Recreation and Health"

(c/o Mr. B. Wright, Conference '86 Director, Jordanhill College of Education, Southbrae Drive, Glasgow G13 1PP, Scotland)

July 27 - 31, 1986

Bielefeld, FRG, "Vth Int. Symposium on Biomechanics in Swimming" c/o Dr. Bodo Ungerechts, Univ. Bielefeld, Abt. Sportwissenschaft, Postfach 8640, D-4800 Bielefeld 1, FRG)

August 22 - 26, 1986

Heidelberg, FRG, AIESEP World Convention "The Physical Education Teacher and Coach today"

(c/o Prof. H. Rieder, Inst. f. Sport und Sportwissenschaft, Im Neuenheimer Feld 710, 69 Heidelberg, FRG)

September 8 - 10, 1986

Berlin (West), Germany, Fifth Meeting of the European Society of Biomechanics.

September 15 - 17, 1986

Istituto Rizzoli - Bologna, Italy, European Conference on Biomaterials.

September 22 - 26, 1986

Brisbane, Australia, XXIIIrd FIMS World Congress of Sports Medicine

(c/o Organizing Committee, XXIII FIMS World Congress, P.O. Box 439, Fortitude Valley, Queensland, 4064, Australia)

1987

July 6 - 10, 1987

International Seminar on Archery, Vrije Universiteit Brussel - Experimental Anatomy; Under the auspices of Olympic Solidarity and Workinggroup Biomechanics of Sport (ISB-ICSSPE), Brussels, Information: Prof. Dr. J.P. Clarys, Belgium

June 29 - July 3, 1987

Xth International Congress of Biomechanics, Vrije Universiteit Amsterdam, Amsterdam, the Netherlands.

(Date to be fixed)

Seoul, Korea, Int. Sports Science Conference on the occasion of the Asian Games

COMMERCIAL ADVERTISEMENTS

The Newsletter is open for commercial publicity at 250 US dollar per full page
150 US dollar per half page
90 US dollar per quarter page
All publicity will be advertised in the 4 issues.

When individual members have a change in a mailing address, it is important to send the new address to the Treasurer so that you are certain to receive copies of the Newsletter and dues notices.

ISB Treasurer:

C.A. Morehouse
109 Sports Research Bldg.
Penn State University
University Park, PA 16802
U.S.A.

ISB Members to Receive Discount on IJSB subscriptions

Beginning in 1986 all ISB members who subscribe to the IJSB will receive a \$ 3.00 U.S. discount on the annual subscription rate. The publisher will have a current ISB membership list so that you merely need to indicate on the subscription form that you are an ISB member to receive the discount.

ISB NEWS

PROTOCOL OF GENERAL ASSEMBLY INTERNATIONAL SOCIETY OF BIOMECHANICS

June 19, 1985

Umea, Sweden

11:55

PROTOCOL

1. The agenda was approved.
2. The minutes were approved.
3. President's report

The President reported the most important activities which were done by the Council and himself during the two years. The most important points were described as being the following;

(1) **Proceedings:** It is the strong belief of the Council and President that the current situation with the publication of the papers of the international conferences is not acceptable at all. A group of Council members and other interested people was formed to study this problem and it is expected that a solution will be found before the Congress 1987 in Amsterdam.

(2) **Contact with other groups:** Intensive contact was undertaken by the President and some other Council members with other societies and groups which have similar interests as we have. The basic philosophy behind this is that we think that we have to cooperate and to work together for the better development of biomechanics as a whole. Intensive contacts were initiated with the ESB, and the last Council meeting was held in connection with the meeting of the European Society of Biomechanics in Davos in September 1984. In addition, intensive contacts were initiated with the USNCB (United States National Committee on Biomechanics) which is some kind of a roof organization for many societies in the United States that deal with biomechanics.

(3) **Newsletter:** The newsletter has been improved from point of view of content as well as from point of view of appearance. The Council feels that the new newsletter is a good mirror for the activities of the International Society of Biomechanics, and the President thanks the newsletter editor, Jan Peter Clarys, for his tremendous work and involvement.

(4) **Standards/Terminology:** A group has been appointed to come out with standards and terminology, and it was discussed in the Council that such information which would be of benefit to all the members in the field of biomechanics will be published in one of the next newsletters.

(5) **Subgroups in ISB:** Since ISB is growing, some subgroups have been formed, such as the force platform group, or the working group of biomechanics in sports. The ISB Council, who in his basic philosophy considers himself as a Council that covers so many fields of biomechanics promotes the formation of such groups and is very glad that such first steps have been undertaken. It is expected that other groups in different other fields and directions will form in the near future.

(6) **Next meetings:** In the Council meeting in Davos, Switzerland, it was decided that the Congress of 1987 will be held in Amsterdam at the Free University. At that time it was also decided to extend the period of three years to four years for the Congress and at this Council meeting in Umea (1985) the Council decided to have the 1989 Congress in Los Angeles.

(7) **Award:** It has been decided that the ISB sponsors a Muybridge award for outstanding researchers. The procedures will be published in one of the next newsletters, and it is planned to have this award given for the first time at the 1987 Conference in Amsterdam.

4. The Treasurer's report was presented by C.A. Morehouse. The details are included in Appendix 1. The audit report was presented by R. Gregor and E. Schneider, and the Treasurer's report was accepted by the membership (Appendix 2). The budget for 1986-1987 was presented by C.A. Morehouse. The tentative budget was accepted by the membership and is attached in Appendix 3.
5. The membership report by June 1, 1985 showed a total 584 active members, which corresponds to about a 20% increase since the conference in Waterloo. The Treasurer could inform the membership that during the conference the 600 mark was passed. A question from the membership came whether the members can be broken down into fields of interest, which was answered by the Treasurer that this is possible 1981 but not before. It will be discussed in the Council whether action should be taken to get that for the whole membership. The membership report is in Appendix 4.
6. Acceptance of new affiliate members. The Council and a special committee worked out new guidelines for affiliate members which were presented to the membership and discussed. The guidelines are in Appendix 5 and will be published in the newsletter in the near future. The following members were voted as being affiliate members of the ISB:
Czechoslovakian Academy of Sciences
French Societe de Biomechanique
USSR Soviet Sports Committee
Korean Society of Biomechanics
China Sports Biomechanics Society
All of them were accepted unanimously.
7. Elections. The elections are the duty of the Past-President. P. Komi informed about the elections 1985. He explained the selection of the candidates based on the scientific achievements, the area of representation, and international representation. He explained the terms of office that the Council members can serve for two years and be reappointed for two more terms of two years, which gives a maximum of a total of six years, that the President serves two years as President-elect, two years as President, two years as Past-President, which gives a total of six years. The total possible range therefore is between two and twelve years. The procedure of 1985 was shortly outlined. Suggestions were made by current Council members and other ISB members. The procedure was explained in the ISB newsletter. After a meeting of the three presidents (Komi, Nigg, Hay) and several phone calls, a final list was prepared and was sent out. The ballots which came in were counted during the ISB Council meeting in Umea by a Council member and another Council member. There was a discussion about the final list which will be presented to the voters. It was clearly stated that the three criteria, scientific achievement, area of representation, and international representation, were the main criteria to select the candidates. The Council decided that we want to be international and we therefore don't want to have one country dominating the Council. The Council also decided that the area of representation should be broadened and that not

one area should be totally dominant. Based on these criteria, the final list was prepared.

The results of the elections are:

President Elect	
John Paul	174
Mitsumasa Miyashita	123
Void	4
	301

Council	
Bob Norman	258
Dewey Morehouse	257
Graeme Wood	251
Mitsumasa Miyashita	232
Don Grieve	228
Aurelio Cappozzo	224
Erich Schneider	214
John Paul	208
Vadim Balsevich	206
Rik Huiskes	200
Don Chaffin	197
Gladys Garrett	166
Krzysztof Kedzior	157
Rients Rosendahl	137

8. Conference information. Different conferences which will be held in the near future were announced, including an information about the Working Group of Biomechanics of Sports by Jan Clarys, the 5th International Symposium on Swimming by B. Ungerechts, the ASB/CSB joint meeting in Montreal, August 1986, the Bulgarian Academy of Sciences meeting, September 1985, the International Symposium on Computer Simulation in Sports Biomechanics in Warsaw, Poland, the International Seminar on Biomechanics in Formio, Italy, and the Science in Wintersports Symposium in Calgary, Canada.
9. Miscellaneous. R.C. Nelson informed that he had some ideas about the proceedings and he will publish them in one of the next newsletters of discussion.

The meeting was closed at 12:50. The total attendance was about 200 members.

ISB Affiliate Society Membership Policy

The primary purpose of the International Society of Biomechanics (ISB) is to promote and stimulate the development of biomechanics at the international level. ISB Recognizes that numerous national and regional societies of biomechanics or related topics have emerged in various parts of the world. In some countries several biomechanics societies exist which represent subdisciplinary interests. Future enhancement of the quality and scope of biomechanics research depends upon mutual cooperation and support of all of these groups and for these reasons ISB has AFFILIATE SOCIETY MEMBERSHIP policy.

1. Benefits of Affiliate Membership

1. Individual members of an Affiliated Society may register at ISB Congresses and obtain other benefits of price (such as cost of Congress Proceedings) at the ISB Individual Member price without being an ISB member under the condition that there is a reciprocal agreement.
2. Sufficient copies of the quarterly ISB newsletter for all members of affiliated Societies will be sent to one named person of the Affiliated Society at production and mailing costs, if that Society wants the newsletters. Note,

special arrangements with countries approved by council may have to be made regarding costs and payments.

3. Affiliated Societies may publish their Society activities, excerpts from their own newsletters, announcements, etc. in the ISB newsletter at no charge. ISB materials may be extracted for publication in newsletters of Affiliated Societies.
 4. Access to expertise, state of research progress and methodologies used by a very broad spectrum of scientists to investigate current issues in diverse areas of biomechanics, will be enhanced.
 5. A single representative of each Affiliated Society may sit at ISB Executive Council meetings as a non-voting but active participant.
- ### II. Requirements for Affiliate Society Membership
1. The Affiliated Society has a constitution and membership on a national or regional scale (e.g., European Society of Biomechanics, Italian Society of Biomechanics).
 2. More than one Affiliate per country or region is possible.
 3. An annual fee of an amount to be decided from time by the ISB Council, must be paid by the Affiliated Society.
 4. The General Assembly of ISB approves a recommendation from the ISB Council for acceptance of application from a potential Affiliated Society.

III. Procedures

1. For consideration by the ISB Council application to the President of ISB for Affiliate membership must be received at least 60 days prior to the opening of the biannual ISB Congress.
2. The application should include a statement of:
 - The objectives of the regional or national society
 - The scope and nature of the group the Society serves
 - The names and professional or academic affiliations of the officers
 - The number of "ful" members registered in the Society
 - A copy of the constitution of the Society
 - The sponsors, if any, of the Society

Notes: 1. In 1985 the ISB Newsletter costs about 75 cents U.S. per copy

2. In 1985 the annual fee for an Affiliated Society is \$100 U.S.

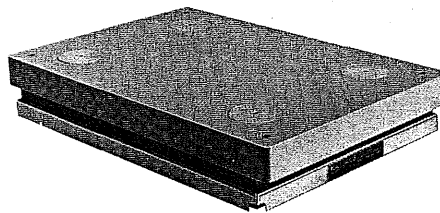
BIOMEDICAL ENGINEERING: The Department of Mechanical and Materials Engineering at Vanderbilt University announces a tenure track position at the Assistant Professor level. The position also involves teaching responsibilities in the area of Mechanical Engineering and Bone and Soft Tissue Biomechanics. The position also involves the development, in cooperation with the School of Medicine, of research in the area of Orthopaedic Biomechanics.

Applicants should submit curriculum vitae and the names of three references to: Dr. A.M. Strauss, Chairman, Mechanical and Materials Engineering, Box 1612, Station B, Vanderbilt University, Nashville, TN 37235. Vanderbilt University is an equal opportunity affirmative action employer.

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ISB Congress, Umea, Sweden, June 1985

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29 June - 3 July 1987

location

The XIth International Congress of Biomechanics will be held in the Main building of the Free University in Amsterdam

topics

Topics to be scheduled will be:
1. Biomechanics of human movement
2. Biomechanics of the musculoskeletal system
3. Biomechanics of tissues and materials
4. Methodology

invited speakers and topics

Dr. R. McNeill Alexander (U.K.)
The spring in your step: the role of elastic mechanisms in human gait

Dr. A. E. Chapman (Canada)
How muscular properties govern technique in sports

Dr. C. Gielen (The Netherlands)
Coordination of movements by the neuro-muscular system

Dr. A. L. Hof (The Netherlands)
Assessment of muscle force in complex movements by EMG

time schedule

- Call for papers and distribution of registration forms
May 1986
- Deadline submission of abstracts
1 December 1986
- Acceptance or rejection of abstracts
15 February 1987
- Deadline for registration of congress participants and submission of complete manuscripts
1 April 1987

secretariat

Interfaculty of Physical Education
Free University
P.O. Box 7161
1007 MC Amsterdam
The Netherlands
Phone (020)- 5486256
Telex 11329

XI international congress
of biomechanics



ISB 1987

Amsterdam

under the auspices of the
International Society of
Biomechanics