

International Society of Biomechanics Newsletter

Summer Issue no. 15, 1984

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243

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Editorial

A Silent Protest

In every newsletter you have seen an announcement "call for papers"

CALL FOR PAPERS

We would appreciate if I.S.B. members could participate more active in this Newsletter. Please send us material : short papers, letters to the editor, laboratory features,... etc.

This summer issue is the first of a series which does not have enough copy.

Apparently the ISB newsletter is not alone with this problem. Our colleagues of ISEK recently (ISEK newsletter 17, 1, 1984) could read an open letter from Carlo J. De Luca concerning the same phenomena. He might have written the letter for I.S.B. too.

We propose (again) to introduce an ISB newsletter feature on laboratories including items such as;

name of Laboratory, Institution, Mailing address, Telephone Number, Purpose and Objectives of Laboratory, Principal Personnel (include names, qualifications, rank within organizational structure and research interests), Technical Support Staff (include names, qualifications and areas of expertise) Student Population (include past and present - either in a general way or with specific names), Organizational and Funding Structure (e.g. is the laboratory a Federally funded operation, part of a University or funded by industry)

You would be surprised how many members are interested to know what is going on in the world of Biomechanics.

Jan Pieter Clarys
Editor

Jan Cabri
Ass. Editor

AN OPEN LETTER

The involvement of our membership in providing material of common interest to the Newsletter has been less than remarkable during the past few years. Your Council would like to see more demonstrable sharing of common interests among membership. Continual requests for material to be submitted to the Newsletter has usually fallen on deaf ears. It often appears as if the Newsletters leave the Editor's office to begin a trip in uncharted space where the probability of encountering an intelligent life form is minute, and the probability of encountering a life form that can and is willing to communicate is zero.

Now, I am sure that this perception of mine is distorted and possibly even erroneous. But, I consider myself to be a mildly skeptical man, therefore, I require some evidence to remove my bias. However, I also realize that your Council could have been instrumental in fostering exchanges. For this reason, I thought that it might be beneficial to all of us if a scientific exchange (debate, if you wish) were to take place in the Newsletter.

It is my fervent hope that by tapping the scientific milieu which brought us together as a Society, we will be able to enrich our bond. Consider it as a challenge if you wish; consider it a duty; consider it an obligation; consider it a nuisance task. But, make sure that you consider it and respond.

Carlo J. De Luca
Secretary



Book Review

Exercise and Sport Sciences Reviews

Volume 11, 1983, 339 pp.

Exercise and Sport Sciences Reviews is an American College of Sports Medicine Journal, published once per year, in which reviews of research concerning clinical, physiological, biochemical and behavioural aspects of exercise science appear.

In the 11th volume (1983), a first review deals with the cellular control of triacyl glycerol (TG) metabolism, having important advantages over glycogen as a storage form of energy and thus as a potential source of ATP. The cellular control of TG metabolism revolves around two major identified lipases: lipoprotein lipase and hormone sensitive lipase. To the first lipase is given particular attention as a possible regulator of intracellular TG in the metabolism of muscle.

A next paper concerns about the control of ventilation in exercise, one of physiologist's unsolved problems. The author attempts to give a valuable explanation for the changes in the neural respiration mechanism resulting from transformations of chemical energy in muscles.

The "Coronary and Collateral Blood Flows During Exercise" review concentrates on the changes in coronary flow and the heart's vascular bed, and is followed by a similar article i.e. "Cardiac Adaptations to Exercise" which focusses on those adaptations to repetitive exercise that occur within the heart.

A following review discusses the major research findings and advances that have occurred on the field of perceived exertion since the 1974 review by Borg and Noble in the *Ex. and Sport Sc. Reviews* of that same year.

The physiological and clinical aspects of exercise in obese persons states that the theory of "physical training is effective in preventing or reversing the energy-accumulating condition of obesity and its complicating disorders" has been borne out by research. How to construct the most useful exercise programs should, according to the authors, attract more attention from the scientific community as well as from politicians, city planners and mass media.

The relationship between sport and juvenile delinquency, more specifically that sport can serve as a deterrent to delinquency, has been checked not only from psychological, but also from social point of view. To gain more insight into the role of sport for the possible prevention of juvenile delinquency, the authors conclude, more research in this field is needed.

The "Pathology of High-Altitude Illnesses" review deals with physiological effects caused by high altitude changes on oxygen-transport in humans, and describes a number of clinical features of the phenomena.

The biomechanical evaluations of sports protective equipment are reviewed in a next article, and gives the current state of equipment evaluation in this field. Biomechanical techniques to prevent severe injury in sports with severe injury rates like football, hockey

have been developed by systematic research. Still unsolved problems remain because of the lack of research in many sports.

Finally, the last two articles concentrate on genetics: the first handles the selected methodological considerations for the sport scientists, the second concerns the genetics of physiological fitness and motor performance.

Exercise and Sport Sciences Reviews, Volume 11, Ronald L. Terjung, editor. 339 pp., 1983, \$ 38.

Jan Cabri



INSTRUCTIONS TO AUTHORS

In order to facilitate the editing of the ISB Newsletter, we would appreciate receiving any material according to the following criteria :

- 1° All material should be typewritten single spaced.
- 2° Typewrite within a frame of 10 cm width.
- 3° The title should be written in CAPITAL LETTERS.
- 4° Subtitles should be written *in italics* and/or underlined.
- 5° Different paragraphs should be separated by double spacing.
- 6° Try to use the whole text-face. There should not be any margins inside the frame.

Thank you in advance for your cooperation.

Jan P. CLARYS

Fak. Geneeskunde & Farmacie
Experimentele Anatomie
Laarbeeklaan 103
B-1090 BRUSSELS (Belgium)

P.S. The ISB Newsletter is published quarterly. Material and articles should reach us prior to February 10 for the Spring issue, May 10 for the Summer issue, August 10 for the Autumn issue and November 10 for the Winter issue.

10 cm

Short Notes

**Human Kinetics Publishers
is pleased to announce
a new journal.**

INTERNATIONAL JOURNAL OF SPORT BIOMECHANICS

Editor
Richard C. Nelson, Ph.D.
The Pennsylvania State University

IJSB Call for Papers

Individuals are encouraged to submit papers to the Editor immediately. The first issue of the *Journal* will be released at the Olympic Scientific Congress in Eugene, Oregon, July 1984. Submit papers to the Editor: Richard C. Nelson, Ph.D., *IJSB*, Biomechanics Laboratory, The Pennsylvania State University, University Park, PA 16802.

IJSB Author Guidelines

Style

The American Psychological Association Style Manual is the official reference for all questions of style. (See the 1974 *Publication Manual of the American Psychological Association* [2nd ed.] and the APA Publication Manual Change Sheet 2 [June 1977] on *Guidelines for Nonsexist Language*.) This style is used in *Biomechanics VIII* and in most behavioral science publications. If authors lack access to these sources, write to the Editor for an author style guide.

Article Submission

Submit a clean original and two copies of the paper. All papers must be in English with a 75-100 word abstract. Manuscripts should not exceed 20 pages, typed doublespaced, with 25 lines per page. This 20-page limit applies to the complete manuscript, including text, illustrations, tables, photographs, and references.

The manuscript should be typed on 8.5 × 11 in. (21.5 × 27.9 cm) white, unlined paper. Only one side of the paper should be used, leaving 1.5 in. (4 cm) margins on all sides. Authors are encouraged to have their manuscript typed using one of the six following type faces: Letter Gothic 12, Prestige Elite 12, OCR B, Courier 12 & 72, Pica 10. These faces can be optically scanned, eliminating the need to re-keyboard the text for editing and typesetting.

Illustrations

Illustrations should be functional, and none should repeat material presented in tables or text. All illustrations must be cited in the text and the approximate placement of each in the text must be indicated. All figures must be professionally prepared and camera-ready; freehand and typewritten lettering will not be accepted. Photographs must have a glossy finish with sharp contrast between black and white areas. Color photographs are not accepted.

Human Kinetics Publishers, Inc.



Box 5076, Champaign, IL 61820

THE VOLVO AWARDS FOR LOW BACK PAIN RESEARCH

In order to encourage research in low back pain, the Volvo Company of Göteborg, Sweden, this year has sponsored three prizes of US \$6000 each. Awards will be made competitively on the basis of scientific merit in the following three areas:

1. Clinical studies
2. Bioengineering studies
3. Studies in other basic science areas

Papers submitted for the contest must contain original material, not previously published or submitted for publication. A multiple authorship is acceptable. The manuscripts should be in the form of a complete report, not exceeding 30 typewritten pages, double-spaced, and in a form suitable for submission to a scientific journal. Five copies of each paper submitted in full should reach the address given below not later than December 3, 1984.

One of the authors should be prepared, at his own expense, to come to Sydney, Australia, at the time of the meeting of the International Society for the Study of the Lumbar Spine, April 14-18, 1985, to present the paper and to receive the award.

A board of referees will be chaired by the undersigned and will contain members from the fields of clinical medicine, bioengineering, and biochemistry.

Please direct all correspondence to:

Professor Alf E. Nachemson
Department of Orthopaedic Surgery I
Särlgron Hospital
S-413 45 Göteborg
Sweden

Short Notes

STATE OF BAHRAIN
UNIVERSITY COLLEGE OF ARTS
SCIENCE & EDUCATION

P.O. Box 1082
Tel: 92748062071
Telex: 9258 UCOBAH

26 February 1984

Dr. Jan Peter CLARE
ISF Newsletter
Experimental Anatomy
Vrije Universiteit Brussel
Laarbeeklaan 103
B-1090 Brussels
Belgium

Dear Sir:

During the last year an advertisement appeared in the ISF Newsletter about biomechanical equipment which some larger laboratories would like to dispose of to other laboratories which are being developed. As UCB has recently started a department of physical education and is now starting a biomechanics laboratory with a very limited budget, we request the editor to present a call in our name for help from these laboratories in sending us their surplus equipment. We would be appreciative of any biomechanical equipment. This will be deeply acknowledged and we will reimburse any shipping costs, etc.

Thanking you in anticipation of your help,

Sincerely,

M. R. Gh. C.

Dr. M. R. Gh. C.
Assistant Professor, Biomechanics
Department of Physical Education



وزارة التعليم
الكلية الجامعية
للمعلمين والاداب والتربية
ص ب ١٠٨٢
تيليفون ٩٢٧٤٨/٩٢٧٤٩
تلكس ٩٢٥٨ بونابا

Short Notes

III SCHOOL ON BIOMECHANICS AND TEACHING MOTOR SKILLS KARPACZ 11-14.04.1983.

The School on Biomechanics and Teaching Motor Skills has been created with the purpose of bringing closer biomechanics and didactics to indicate the common area of practical applications valid for both disciplines. Teaching motor skills and their developed form, i.e. the sports technique in particular lies within the sphere of interest of both biomechanics and didactics. Effective teaching requires the recognition of its own purpose, that is the purpose of the subject being taught, which is achieved by way of accurate biomechanical analysis and perfecting the very process of teaching sports technique, this being the object of sports didactics.

Summing up the Schools I and II we put ourselves certain questions which have already appeared before, namely :

1. What is, in the work of a physical education teacher, the significance of teaching motor skills and what is meant by this process/ teaching / ?
2. Assuming that the teaching process is to be considered in the categories of a feedback between the teacher and his student, we discussed the division of this process into stages where of special significance are : the impact on the student's perception / the impact on his consciousness /, the attempt of the recognition of the environment and one's own body / collecting the motor experience and completing the the motor memory / and the full exchange of information on the feedback basis.

3. The recognition of the teaching purpose, its accuracy and fulness, lays down certain requirements on biomechanics which renders the recognition optimal. The scope of teacher's knowledge should reach both the ability of receiving the information straight from the motor research laboratory and the competence for choosing an adequate code to transmit the information to his student.
4. The optimization of sports technique was also considered. So far it has been accomplished mainly in the training process whereas according to the participants of the School the formation of the future sports technique should be based more intensively on the research.

Proceedings of 1st School, Karpacz 1981;
Zeszyty Naukowe AWF in Wrocław No 29,
Wrocław 1982.

Proceedings of IIInd School, Olejnica
1982 : Zeszyty Naukowe AWF in Wrocław
No 33, Wrocław 1983.

The subject of IIIrd School were the faults in technique, their biomechanical identification and the question of preventive teaching. The problem of faults was considered in the vast light of several disciplines like biomechanics, didactics, theory of information, psychology and pedagogics. One of the results of the discussion was the suggestion to work on a meta-language which would render possible the definition of the basic terms of sports technique and teaching it.

Detailed programme of IIIrd School

T. Bober and B. Czabański
Introduction - summing up the topics of
1st and IIInd School.

L. Lewillie / Brussels /
Spectral analysis of biomechanical factor.
Optimization criteria applied to crawl swimming.
Evolution of ground reaction forces during gait rehabilitation.

H. Pohlmann / Jena /
The causes of faulty techniques in the regulation equilibrium of balance tasks.

A. Kabsch / Poznań /
The biomechanical approach to faults in sports technique.

A. Komor / Warszawa /
Computer methods of optimization of sports technique.

K. Boitchev / Sofia /
Ideal technique of movement and errors during performance.

B. Czabański / Wrocław /
The theories of teaching motor skills / part one /

M. Kulczycki / Wrocław /
Psychological concept of faults in life activity

Z. Czajkowski / Katowice /
Teaching and perfecting of sports technique.

Z. Naglak / Wrocław /
Sports technique and its faults.

The School is sponsored by the ministerial problem 10.7 and takes place under the auspices of the biomechanics working group of the Scientific Committee ICPER of the UNESCO in the presence of its representative Dr. Leon Lewillie. The School was attended by 50 participants.

The IVth School will be held on May 6-10, 1984 with the number of expected lectures reduced for the benefit of the reports on the research results of the joint proceedings of biomechanics and teaching motor skills / e.g.,

passing from the biomechanical analysis to its applications in form of pedagogical experiment, construction of teaching automata or enrichment of the theory of education.

Co chairmen :
Tadeusz Bober
Bogdan Czabański

Address :
Akademia Wychowania Fizycznego
Dział Nauki
ul. Banacha 11, 51-617 Wrocław, Poland
tel. 48-23-39



Short Notes

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.



Murphy lives!

If there is a wrong way to do something, then someone will do it.

—Edward A. Murphy Jr.

To most people Murphy's law is a joke. But to its originator, a real live person named Edward A. Murphy Jr., his law is a serious maxim about mankind's fallible interactions with machines. Anyone who confronts a piece of equipment for the first time, says Murphy, should find out if there is a way to bollix it. Can a part be put in backwards? Can two wires be crossed? If so, heed Murphy's admonition and make doubly sure that doing something the "wrong" way is difficult—preferably impossible.

Murphy's law has been around since the first caveman realized that it was always the tenderest piece of meat that fell off his skewer into the fire. But not until 1949 was this law of nature given the name it bears today. In that year, Air Force Major John Paul Stapp was piloting a rocket sled in tests at Muroc—now Edwards—Air Force Base to find out how much acceleration a human body could stand. Air Force Captain Edward Murphy had developed special harness fixtures that held 16 sensors to measure the accelerational forces bearing on Stapp's body. The rocket sled was fired, subjecting Stapp to g-forces approaching 40 times Earth's gravity.

Stapp released his harness and with bloodshot eyes stumbled back to where a technician stood.

"How many gees did the sensors read?" croaked Stapp.

"Zero," said the technician nervously.

Perplexed, Stapp telephoned Murphy, who flew back from Ohio to Muroc the next day. As it happened, there were two ways to glue each sensor to its fixture. Someone had methodically installed all 16 the wrong way.

"If there are two or more ways to do something," Murphy pronounced,

"and one of those ways can result in a catastrophe, then someone will do it."

Project engineer George Nichols immediately dubbed it Murphy's law. At the press conference following the rocket sled test, Stapp mentioned that the project's excellent safety record could be credited to a firm belief in Murphy's law. Within a few months, Murphy's law was being mentioned in aerospace manufacturers' ads, and the Flight Safety Foundation began to quote it in their official bulletins.

Then the humorous variations began to appear. The most popular version—"If something can go wrong, it will"—is anathema to the very serious Edward Murphy. Its fatalistic acceptance of the inevitable perverts his original concept of a sort of moral to help prevent accidents.

As a reliability engineer for Hughes Helicopters Inc., Murphy's current job is to make sure that his law doesn't work its will on helicopters. He has long since abandoned hope that he will be popularly recognized as the creator of the law that bears his name. It seems to be his fate just because he's stuck with an ordinary name like Murphy.

—Robert L. Forward

from "Science '83"

COMMERCIAL ADVERTISEMENTS

The Newsletter is open for commercial publicity at

100 US dollar per full page

50 US dollar per half page

25 US dollar per quarter page

All publicity will be advertised in the 4 issues.

Congress Announcement

1984 Olympic Scientific Congress
 United States Organizing Committee
 1479 Moss Street • Eugene, OR 97403



Sport • Health • Well-Being



1984
**McMASTER INTERNATIONAL SYMPOSIUM
 ON HUMAN MUSCLE POWER:
 FACTORS UNDERLYING MAXIMAL PERFORMANCE**
 July 15-17, 1984

FIRST ANNOUNCEMENT

This is the first announcement of the McMaster Symposium on Human Muscle Power: Factors Underlying Maximal Performance, to be held at McMaster University Health Sciences Centre, Hamilton, Ontario, Canada, on July 15-17, 1984. The meeting has been scheduled to allow interested delegates to proceed on to the Olympic Scientific Congress in Eugene, Oregon, July 19-26, 1984.

PROGRAM

The program will feature lectures and discussion by international scientists. Participation as speaker will be by invitation only; there will be no call for abstracts.

SECTION	SPEAKERS
MECHANICS	D.R. Wilkie (U.K.), H. Perrine (U.S.A.), P.V. Komi (Fin.), D.A. Winter (Can.)
MORPHOLOGY	V.R. Edgerton (U.S.A.), H. Howald (Switz.), J.A. Faulkner (U.S.A.), R.H.T. Edwards (U.K.)
NEURAL	R.E. Burke (U.S.A.), I. Gombay (Swed.), R.B. Stein (Can.), C.D. Marsden (U.K.), A.J. McCloskey (Can.)
METABOLISM	M.I. Kushmerck (U.S.A.), M. Barany (U.S.A.), I.A. Newsholme (U.K.), H. Green (Can.)
EXHAUSTION	B. Bigland-Ritchie (U.S.A.), I. Hultman (Swed.), B. Chance (U.S.A.), I. Hermansen (Den.)
ADAPTATION	P.D. Godrick (U.S.A.), J.D. McDougall (Can.), D.G. Sale (Can.), R.H.T. Edwards (U.K.), W.I. Gombay (U.S.A.)

GENERAL INFORMATION

REGISTRATION FEE
 \$150-200 Canadian (contingent upon external funding being obtained). Deadline for receipt of registration MAY 1, 1984. Attendance limited to first 250 replies.

- REGISTRATION FEE INCLUDES:
- admittance to all lectures and exhibits
 - copy of the published Proceedings
 - daily shuttle bus service
 - closing cocktail party
 - break and refreshment services

ACCOMMODATION: • in local hotels or at a reduced rate in University housing

6th CONGRESS OF INTERNATIONAL SOCIETY OF ELECTROPHYSIOLOGICAL KINESIOLOGY

第6回国際電気生理動作学会

AUGUST 26-29, 1985, TOKYO



CONGRESS OF

isek

Congress Chairman's WELCOME

The 6th Congress of International Society of Electrophysiological Kinesiology is to be held at the Nippon Press Center Hall, Tokyo on August 26 through 29, 1985.

The Congress will be a large-scale scientific meeting mainly aiming at research of Kinesiology from the standpoint of fast growing electrophysiological kinesiology. Since the 1st Meeting held in Montreal, Canada in 1968, the congresses of Electrophysiological Kinesiology have contributed internationally to the advancement of this field of science. Moreover, it is my pleasure to inform you that, thanks to the members of The Far East meeting held in Tokyo, Japan in September 1981 was concluded very successfully.

Since Electrophysiological Kinesiology is covered by a wide range of scientific fields, its research scientists are from various fields such as medicine, engineering, electricity, physiology, biology, etc. There are many subjects to be discussed; for example, the theory, principle of each apparatus and its operational method, evaluation of analyzed results, clinical application, etc. I believe that this congress will provide the research scientists meeting under the same roof with important and significant opportunities to exchange their views on the aforementioned subjects.

I sincerely hope that many research scientists from many parts of the world will participate in this congress to make it successful.

Tadaatsu Ito
 Tadaatsu Ito, M.D.
 Congress Chairman

SECRETARIAT

6th CONGRESS OF ISEK

c/o Japan Convention Services, Inc.
 Nippon Press Center Bldg.
 2-2-1, Uchisaiwai-cho, Chiyoda-ku,
 Tokyo 100, Japan

〒100 東京都千代田区内幸町2-2-1
 日本プレスセンタービル
 日本コンベンションサービス株式会社社内
 第6回国際電気生理動作学会事務局 行

Official Congress of the
INTERNATIONAL SOCIETY
OF BIOMECHANICS

ISB



X International Congress
of Biomechanics
June 15-20th, 1985
Umeå, Sweden



X International Congress of Biomechanics

will be held in Umeå, Sweden, June 15-20th, 1985, hosted by
the Research Department of the Swedish National Board of
Occupational Safety and Health.

Organizing Committee

Bengt Jonsson, Congress Chairman
Mats Hagberg, Congress Vice Chairman
Gudrun Hedberg, Congress Vice Chairman
Inga-Märit Hagner, Congress Vice Chairman
Kjell Niemi, Congress Secretary

Congress Secretariat:

X International Congress of Biomechanics
Work Physiology Division
National Board of Occupational Safety and Health
Box 6104
S-900 06 Umeå
Sweden

Telephone: (46-90) 165060

The International Society of Biomechanics

Founded August 30, 1973

The purpose of the International Society of Biomechanics is to
promote and stimulate the development of biomechanics at the
international level. Its membership includes scientists from a
variety of disciplines including anatomy, physiology, engineering,
orthopaedics, rehabilitation medicine, sport science, ergonomics,
electrophysiological kinesiology and others. The Society holds an
official International Congress every two years. In previous
years this has been held in Pennsylvania, Jyväskylä, Copenha-
gen, Warzaw, Nagoya and Waterloo. The first three Seminars on
Biomechanics were held in Zurich, Eindhoven and Rome.

Deadlines

December 1st, 1984 - Receipt of Abstracts
March 1st, 1985 - Notification of Accepted Papers
April 15th, 1985 - Receipt of Manuscripts
April 15th, 1985 - Late Registration Starts

Publication of Proceedings

Selected presented papers will be published in Biomechanics X.
Author's kits and manuscript specifications will accompany no-
tice of acceptance of abstracts. Manuscripts will be in English.

Topics

The aim of the Congress is to report research in the area of
biomechanics of human movement. The Congress will include
invited lectures and free communications (oral and poster).
Papers are invited in the following areas:

- Basic Research in Biomechanics
- Occupational Biomechanics
- Orthopaedic Biomechanics
- Rehabilitation Biomechanics
- Sports Biomechanics
- Electromyography and Neuromuscular Control
- Instrumentation and Methodology

Official Language

The Official Language of the Congress is English.

For preliminary registration
Please cut, complete and return the form below as soon as possible

I am interested in participating in the X International Congress
of Biomechanics in Umeå, Sweden, June 15-20th, 1985. Please
include me on your mailing list for future announcements.

(Please print in block letters)

Name: _____

Affiliation: _____

Mailing Address: _____

Telephone: _____

Please indicate if you intend to present a paper No Yes

Intended title: _____

I am an ISB member

I want to become an ISB member

COMMERCIAL ADVERTISEMENTS

The Newsletter is open for commer-
cial publicity at

100 US dollar per full page

50 US dollar per half page

25 US dollar per quarter page

All publicity will be advertised in
the 4 issues.

SCIENTIFIC ADVERTISEMENTS

On request of ISB members and on
condition that there is no relation
with a commercial circuit, all
scientific advertisements will be
published free of charge.

Membership of ISB

NEW MEMBER LIST FOR ISB:

CHOW, JOHN W. #810
2713 WAYNE AVENUE
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POLAND

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ISB Members - Change of Address

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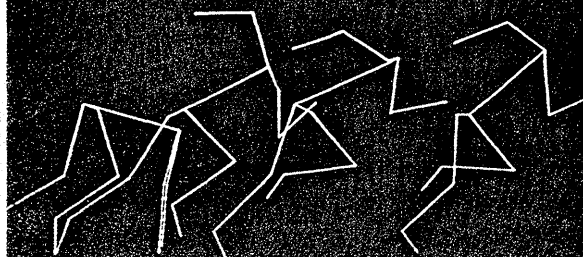
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COLLECTED PAPERS ON
SPORTS BIOMECHANICS

Edited by
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An
Introduction
to Mechanics of
Human Movement

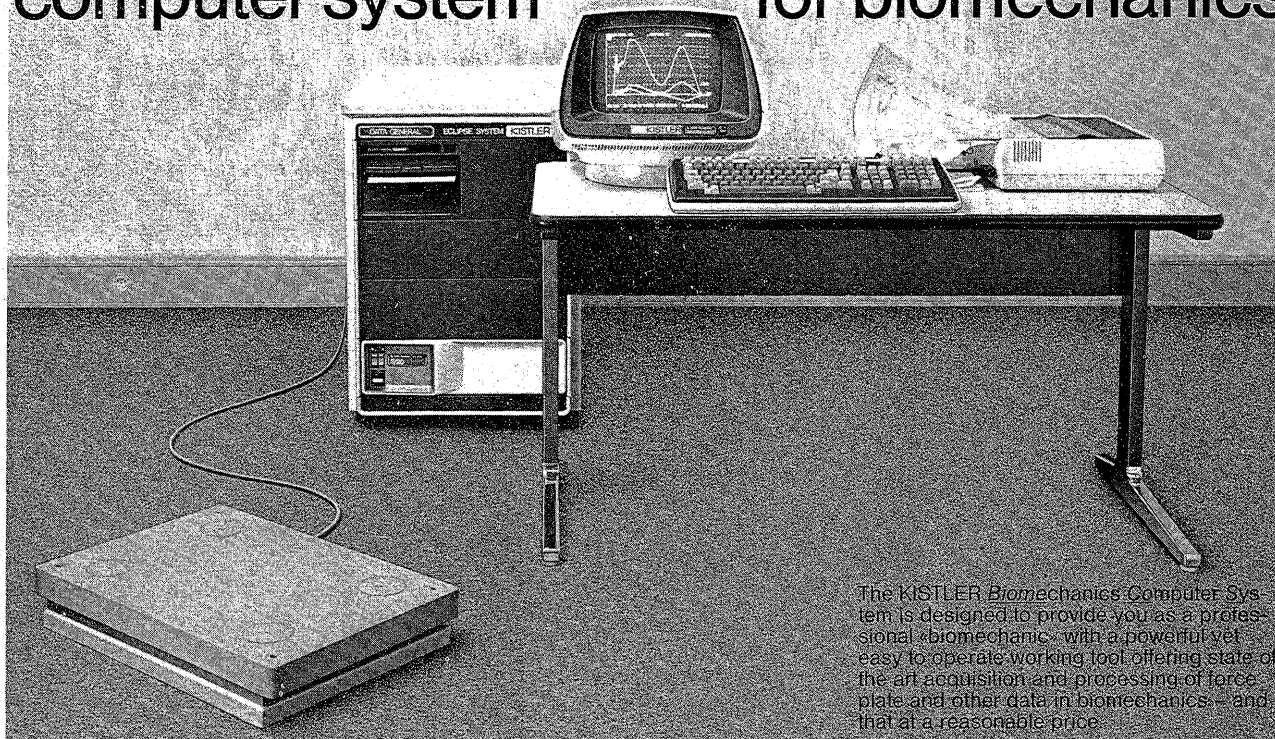


James Watkins



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KISTLER-*BiomeCoS* – a professional computer system for biomechanics



The KISTLER *Biomechanics Computer System* is designed to provide you as a professional «biomechanic» with a powerful yet easy to operate working tool offering state of the art acquisition and processing of force plate and other data in biomechanics – and that at a reasonable price.

Instant video monitoring no waiting for display

An automatic and instant precision video graphics display makes monitoring easy and eliminates the need for compiling unnecessary data. Real time processing and instant display allow efficient work at a speed hitherto unknown in such systems. Hardcopies and display of additional parameters as well as zooming in on details are available through single keystroke commands thus offering a comfort far beyond the capabilities of a digital storage oscilloscope.

Fast data acquisition with automatic trigger

Up to 16 000 measurement data per second can be acquired with less than 0,05% error. With one force plate this corresponds to 2000 force vectors, points of force application and torques per second. Pretriggering works from any of the 3 force components and does not require external triggering devices, a great advantage in applications such as gait analysis and sports. The system therefore offers the features of a sophisticated transient recorder as well.

Easy to operate and user friendly

No specialized computer knowledge is required to learn how to operate BiomeCoS within a few minutes. The charge amplifiers and interface electronics are completely remote controlled by the computer. Most tasks are initiated by a single keystroke. A self-explanatory query guides the user and makes setting the measurement parameters and display functions straightforward. Zero-offset correction, range selection and internal calibration are automatically performed in real time, unnoticed by the user.

Large storage capacity yet fully mobile

A rugged, sealed and field proven Winchester hard disk offers ample capacity to store and retrieve large amounts of data in seconds without annoying waiting times. Measurements can be taken in at a rapid rate by the dozens and are automatically stored in negligible time. Through a high density flexible disk drive data may be quickly transferred to and from the system. The sturdy and compact unit can easily be carried around.

Professional scientific computer system

BiomeCoS is based on the ECLIPSE S/20, the newest generation of scientific 16 bit microcomputers from Data General Corp. It is one of the fastest, most advanced and cost efficient systems available today. The 128 kilobyte memory is expandable to 2 Megabytes, the 5 Megabyte hard disk can be extended to 15 or 50 Megabytes. The floppy disk has 1,2 Megabytes, and a cartridge tape drive is available, too. Professional service for the hardware is assured by Data General's worldwide service organization. The remote controlled charge amplifiers are directly mounted in the computer housing. The KISTLER developed software is optimized in Assembler language and will continuously be upgraded.

BiomeCoS can keep pace with your future needs

The system can normally be fitted with one or two 8-channel charge amplifier units and can be used with one or several force plates. Additional data such as EMG, video data, synchronization signals and so on may be fed into the system which in turn can produce digital and analog outputs for various purposes. BiomeCoS is usually powerful enough to serve as the main computer. If need be it can readily communicate with larger units. An IEEE interface is also available as an option. The user may write his own additional programs in FORTRAN V, PASCAL or BASIC. An optional superfast hardware floating point processor may then be useful.

Over 400 KISTLER force plates are used by leading institutions in 30 countries around the world.

Please ask for detailed information.

Systems will be shown at:
IX ISB Congress Waterloo, August 1983

Piezo-Instrumentation

KISTLER

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