

AMERICAN SOCIETY OF BIOMECHANICS

NEWSLETTER

No. 3

March 1977

Foreword

This third Newsletter deals primarily with two topics: the first annual meeting to be held in October, and the researchers who have indicated an interest in joining the Society.

Call for Papers

The newly formed American Society of Biomechanics announces its first Annual Meeting to be held October 18 and 19, 1977, at the University of Iowa, Iowa City, Iowa. If interested in presenting a paper on any biomechanics research topic, please submit a 200 word, typewritten, single spaced abstract (without illustrations or tables) to:

Gary L. Soderberg, Ph.D.
Physical Therapy
S120 Westlawn
The University of Iowa
Iowa City, Iowa 52242

Abstracts will be reproduced as submitted for the proceedings of the meeting, if the paper is chosen for presentation. Other submitted abstracts will be included in the proceedings unless withdrawn. Selection of papers will be made by a multidisciplinary committee without regard to authorship.

The deadline for the submission of abstracts is June 1, 1977. Authors will be notified regarding selection for presentation on approximately July 1.

Keynote Talks

Three distinguished biomechanics researchers have agreed to present keynote talks at the first meeting. Abstracts of those talks appear below. The Program Committee would like to receive additional abstracts on these three subjects in response to the Call for Papers,

as well as papers on other topics. Selected abstracts relating to the keynote talks will be presented along with those talks in one of the three keynoted sessions. All other papers will be considered for presentation at the general sessions.

Keynote Abstracts

BIOMECHANICS OF SPORT RESEARCH

WHAT SHOULD THE FUTURE HOLD?

Doris I. Miller, Associate Professor
School of Physical and Health Education
University of Washington
Seattle, Washington 98195

Although researchers in the biomechanics of sport are making encouraging progress in contributing to the understanding of the mechanics of human motion, four areas come to mind in which gaps need to be bridged or existing ties strengthened. These include closer communication with individuals and groups in other application areas of biomechanics and further cooperative research with colleagues in the exercise sciences. In addition, since the domain of biomechanics encompasses the biological substrate at one extreme and mathematical models at the other, a critical review of how these extremes are being and can be assimilated effectively into the study of sport is in order. And finally, more investigators should be encouraged to carry their research beyond temporal relationships and total body center of gravity analyses to a careful consideration of the role of the individual segments in producing the coordinated motor patterns which characterize skilled performance.

FAILURE CHARACTERISTICS OF HUMAN BONE

Albert H. Burstein, Ph.D.
Biomechanics Division
The Hospital for Special Surgery
535 East 70th Street
New York, New York 10021

One of the most common diseases in our society is bone fracture. In order to understand the cause and properly treat this condition, fundamental understanding of the failure properties of bone is required.

In this presentation, failure modes for bone tissue under tensile, compressive and shear loadings will be discussed. Changes in failure characteristics that arise as a consequence of the normal aging process will be described.

Particular attention will be given to the differences between juvenile and adult bone, and between young and aged bone. Some of the currently proposed composite models of bone tissue will be described. Application of these concepts to whole bone fracture will be presented and finally the bio-dynamic nature of bone will be discussed with emphasis on fatigue-type failures.

BIOMECHANICAL INTERPRETATION IN FUNCTIONAL MORPHOLOGY

Dr. Carl Gans
Division of Biological Sciences
University of Michigan
Ann Arbor, Michigan 48104

Functional morphology uses a combination of observation and experiment to examine the matching of animal structures to the adaptive requirements of their particular environmental niches. Its questions consequently derive from the view that structures may participate in carrying out multiple comparable and sometimes conflicting biological roles. Consequently, it is often impossible to extrapolate the major functions performed by a particular element from a purely structural analysis. Indeed the functions that are actually performed by a structure may only be established by observation or measurement. The intrinsic complexity of animal systems furthermore requires that the approaches had best proceed by successive approximations. The resulting measurements provide one input for biomechanical analysis that may establish how closely the actual structure is matched to the observed utilization pattern. Examples from vertebrate locomotion and respiration should help to clarify and document these general ideas.

Review and Selection Procedures

When the Secretary receives an abstract, he will reproduce it, deleting all author identification. It will then be sent to the six members of the Paper Selection Committee for blind review. This Committee represents a reasonable spectrum of disciplines with interest in biomechanics.

First Annual Meeting: Tentative Program

Monday:	October 17	Social - Iowa Memorial Union (evening)
Tuesday:	October 18	8-8:30 Registration
		8:30-9:20 Keynote Speaker
		9:20-10:00 Related Papers (2)
		10:00-10:15 Coffee
		10:15-11:05 Keynote Speaker
		11:05-11:45 Related Papers (2)
		LUNCHEON
		1:00-1:50 Keynote Speaker
		1:50-2:30 Related Papers (2)
		2:30-3:30 Coffee and Technical Discussion
		3:30 Business Meeting
		SOCIAL HOUR & DINNER
Wednesday:	October 19	8:30-9:50 Free Communications (4 papers)
		9:50-10:10 Coffee
		10:10-11:50 Free Communications (5 papers)
		LUNCHEON
		Tours
		Recreation

Registration and Accomodation Information

The first scientific meeting of the American Society of Biomechanics is to be held October 18th and 19th in Iowa City, Iowa. The meeting will unofficially begin at 8 p.m., Monday, October 17th, with a social hour (for those who can attend) in the Faculty Club of the Iowa Memorial Union. The official meeting will commence at 8:00 a.m., Tuesday, October 18th, and end at 12:00 noon, Wednesday, October 19th. Following the official end of the meeting will be lunch and then tours of various biomechanics facilities on the campus of the University of Iowa for those who are interested. All sessions will be held in the Illinois Room of the Iowa Memorial Union (on the campus of the University of Iowa in the center of town). Housing will be reserved in the adjacent Iowa House (currently \$13.50 for a

single room and \$18.00 for a double). Commercial airline service (United and Ozark) to Iowa City is through the Cedar Rapids Airport, twenty miles north of Iowa City. Charter Coaches Limousine Service provides door-to-door service from the airport to any location in Iowa City (\$5.00 one way). The Iowa City Municipal Airport is available for private planes. Iowa City is immediately south of Interstate 80 for those anticipating ground travel.

Registration fees for the meeting will be \$25.00. This will include all administrative costs, snacks (but not drinks) for the social hours (Monday, October 17th, 8:00 p.m. and Tuesday, October 18th, 5:00 p.m. with cash bar), lunches on October 18th and 19th, morning and afternoon coffee breaks, programs, and printed abstracts of the meeting.

A registration form for the meeting is attached to this Newsletter.

Names and Affiliations of Those Interested in
ASB Membership

To date, the following have indicated interest in participating in ASB activities:

Akkas, Nuri; Civil Engineering; Middle East Technical University;
Ankara, Turkey
Andrews, James; Engineering; University of Iowa, Iowa City, IA.
Andriacchi, Thomas; Orthopaedics; Rush Medical College; Chicago, IL.
Arvikar, Ram; Mechanical Engineering; University of Wisconsin;
Madison, WI.
Askew, Michael; Mechanical Engineering; R.P.I.; Troy, N.Y.
Ayoub, M.M.; Industrial Engineering; Texas Tech. University; Lubbock,
TX.
Bahniuk, Eugene; Mechanical Engineering; Case Western Reserve University; Cleveland, OH.
Barlow, David; Physical Education; University of Delaware; Newark, DE.
Bates, Barry; Physical Education; University of Oregon; Eugene, OR.
Batterman, Steven; Mechanical Engineering; University of Pennsylvania;
Philadelphia, PA.
Belytschko, Ted; Materials Engineering; University of Illinois;
Chicago, IL.
Berger, Robert; U.S. National Bureau of Standards; Washington, D.C.
Black, Jonathan; Orthopaedic Surgery Research; University of Pennsylvania; Philadelphia, PA.
Boykin, William; Engineering Sciences; University of Florida; Gainesville, FL.

Brown, Eugene; Physical Education; University of Oregon; Eugene, OR.
Burststein, Albert; Biomechanics Laboratory; Hospital for Special
Surgery; New York, NY.
Cahill, Bernard; Great Plains Sports Medicine Foundation; Peoria, IL.
Chandran, K.B.; Biomechanics Laboratory; Tulane University Medical
School; New Orleans, LA.
Cooper, John; Graduate Division; Indiana University; Bloomington, IN.
Crowninshield, Roy; Orthopaedic Surgery; University of Iowa; Iowa
City, IA.
Crugnola, A.; Plastics; University of Lowell; Lowell, MA.
Dainis, Andrew; Physical Education; University of Maryland; College
Park, MD.
D'Amico, J.C.; Orthopaedics/Biomechanics; New York College of
Podiatric Medicine; New York, NY.
DeLacerda, Fred; Health and Physical Education; Oklahoma State
University; Stillwater, OK.
Deusinger, Robert; Physical Therapy Education; University of Iowa;
Iowa City, IA.
Dillman, Charles; Physical Education; University of Illinois; Urbana, IL.
Doolittle, T.L.; Physical Education; University of Washington;
Seattle, WA.
Dostal, William; Physical Therapy Education; University of Iowa; Iowa
City, IA.
Downie, Patricia; Exercise Physiology and Biomechanics; Smith College;
Northampton, MA.
Ellis, Joseph; Clinical Research Fellow in Podiatry; 1770 Eddy St.;
San Francisco; CA.
Galante, Jorge; Orthopaedic Surgery; Rush Medical College; Chicago, IL.
Godfrey, C.M.; University of Toronto; Toronto, Ontario, Canada
Gregor, Robert; Kinesiology; UCLA; Los Angeles, CA.
Groppel, Jack; Movement Science Program; Florida State University;
Tallahassee, FL.
Hayes, Wilson; Orthopaedic Surgery; University of Pennsylvania;
Philadelphia, PA.
Hlavac, Harry; Biomechanics; California College of Podiatric Medicine;
San Francisco, CA.
Hoerner, Earl; 40 W. Northfield Road; Livingston, NJ.
Holt, Daniel; Orthopaedic Surgery; West Virginia University; Morgan-
town, WV.
Huang, T.K.; Engineering Mechanics; University of Wisconsin; Madison, WI.
Huston, Ronald; Engineering Analysis; University of Cincinnati;
Cincinnati, OH.
Hutton, Robert; Physical Education; University of Washington; Seattle,
Huyck, Bill; Physical Education; Carleton College; Northfield, MN.
Jones, Lester; Biomechanics; California College of Podiatric Medicine;
San Francisco, CA.
Jurist, John; Orthopaedic Surgery; University Hospitals; Madison, WI.
Kamon, E.; Pennsylvania State University; University Park, PA.
Katz, J.L.; Biomedical Engineering; R.P.I.; Troy, NY.
Kaufman, David; Physical Education; University of Florida; Gaines-
ville, FL.
Kelley, David; Physical Education; University of Maryland; College
Park, MD.

Kraus, Harry; Mechanics; 275 Windsor St.; Hartford, CT.
Krieghbaum, Ellen; Physical Education; Montana State University,
Missoula, MT.
Kroemer, K.H.E.; Industrial Engineering; Wayne State University;
Detroit, MI.
Kuli, Steve; Mechanics; R.P.I.; Troy, NY.
Lai, W. Michael; Mechanical Engineering; R.P.I.; Troy, NY.
Lamb, Robert; Kinesiology; College of Virginia; Richmond, VA.
Lardner, Thomas; Theoretical and Applied Mechanics; University of
Illinois; Urbana, IL.
Less, Menahem; Special Physical Education; Adelphi University; Garden
City, NY.
Levine, Robert; 880 Woodward Ave; Suite 102; Pontiac, MI.
Lewis, Frank; Wright Manufacturing Company; Arlington, TN.
Lewis, Harold; Rothwell Gym; University of Missouri; Columbia, MO.
Lippert, Frederick; Orthopaedic Service; Veteran's Hospital; Seattle,
WA.
Marszalez, John; California College of Podiatric Medicine; San Fran-
cisco, CA.
Martin, R. Bruce; Orthopaedics; West Virginia University Medical
Center; Morgantown, WV.
Martinez, Raymond; HPERs; East Carolina University; Greenville, NC.
Mason, Bruce; Physical Education; University of Oregon; Eugene, OR.
Mayott, Clarence; University of Alabama Medical Center; Birmingham, AL.
McElhaney, James; Biomedical Engineering; Duke University; Durham, NC.
McLaughlin, Thomas; Biomechanics Research Laboratory; University of
Illinois; Urbana, IL.
Miller, Doris; University of Washington; Seattle, WA.
Miller, Norman; Mechanical Engineering; University of Illinois;
Urbana, IL.
Minns, R.J.; Engineering Science; University of Durham; Durham, England
Mohan, Dinesh; Insurance Institute for Highway Safety; Washington, D.C.
Moss, Melvin; Anatomy; Columbia University; New York, NY.
Moss-Salentijn; Letty; Anatomy; Columbia University; New York, NY.
Mote, C.D.; Mechanical Engineering; University of California;
Berkeley, CA.
Mow, Van; Mechanical Engineering; R.P.I.; Troy, NY.
Neeves, Robert; Human Performance Laboratory; University of Delaware,
Newark, DE.
Nelson, Edward; Medicine and Surgery; Academy of Health Sciences;
Fort Sam Houston, TX.
Nelson, Richard; Biomechanics Laboratory; Pennsylvania State Univer-
sity; University Park, PA.
Passmann, S.L.; Engineering Science and Mechanics; Georgia Institute
of Technology; Atlanta, GA.
Peterson, Kent; 3980 El Camino Real; #39, Palo Alto, CA.
Pijanowski, Gerald; Veterinary Anatomy; Purdue; West Lafayette, IN.
Pope, Malcolm; Orthopaedic Surgery; University of Vermont; Burlington.
Price, Donald; Accident Control; NL Industries; Hightstown, NJ.
Rab, George; Ireland Army Hospital; Ft. Knox, KY.
Radin, Eric; Orthopaedic Surgery; 300 Longwood Ave; Boston, MA.
Reddi, M. Mahadeva; Engineering Mechanics; Franklin Institute Research
Laboratories; Philadelphia, PA.

Roberts, Elizabeth; Physical Education; University of Wisconsin;
Madison, WI.

Roberts, Sanford; Engineering and Applied Science; UCLA; Los Angeles, CA.

Roberts, Thomas; Scientific Specialist; University of Wisconsin;
Madison, WI.

Roobazar, Aziz; Industrial Engineering; Wichita State University;
Wichita, KS.

Roth, Vladimir; Mechanical Engineering; R.P.I.; Troy, NY.

Shanebrook, J. Richard; Mechanical Engineering; Union College;
Schenectady, NY.

Shapiro, Robert; Biomechanics Research Laboratory; University of
Illinois; Urbana, IL.

Smith, Christopher; P.O. Box 7855; Rincon Annex; San Francisco, CA.

Smith, Paul; Movement Science; Florida State University; Tallahassee, FL.

Spengler, Dan; Orthopaedics; University of Washington; Seattle, WA.

Steele, Charles; Mechanical Engineering; Stanford University;
Stanford, CA.

Strauss; Alvin; Engineering Analysis; University of Cincinnati;
Cincinnati, OH.

Svalbonas, Vytas; Franklin Institute Research Laboratories; Phila-
delphia, PA.

Swain, James; 727 - 25th Street, New Port News, VA.

Terrell, Robert; Human Factors Engineering; Tennessee Eastman Company;
Kingsport, TN.

Tsai, Hsi Chin; Franklin Institute Research Laboratories; Phila-
delphia, PA.

Unsworth, Anthony; Engineering Science; University of Durham; Durham,
England

Valmassy, Ronald; Biomechanics; California College of Podiatric
Medicine; San Francisco, CA.

Vito, Raymond; Engineering Science and Mechanics; Georgia Institute
of Technology; Atlanta, GA.

Vorro, Joseph; Anatomy; Michigan State University Medical School;
East Lansing, MI.

Walton, James; Applied Mechanics; Stanford University; Stanford, CA.

Ward, Terry; Biomechanics Laboratory; Florida State University;
Tallahassee, FL.

Ward, Thomas; Industrial and Systems Engineering; University of
Southern California; Los Angeles, CA.

Weisman, Gerald; Orthopaedic Surgery; University of Vermont; Burling-
ton, VT.

Wernick, Justin; Orthopaedics; New York College of Podiatric Medicine;
New York, NY.

Widera, G.E.O.; Materials Engineering; University of Illinois; Chicago.

Wilder, David; Orthopaedic Surgery; University of Vermont Medical
School, Burlington, VT.

Williams, Melvin; Health and Physical Education; Old Dominion Univer-
sity; Norfolk, VA.

Zarrugh, Mohamed; Biomechanics Laboratory; University of California; Berkeley, CA.

Arsenault, Bertrand; Physiotherapie; Universite De Sherbrooke; Sherbrooke, Quebec, Canada

Bartel, Donald; Mechanical and Aerospace Engineering; Cornell University; Ithaca, NY.

Bock, Walter; Biological Sciences; Columbia University; New York, NY.

Bryant, Tim; Mechanical Engineering; Queen's University; Kingston, Canada

Burke, Roger; Physical Education; University of Southern California; Los Angeles, CA.

Cryer, Walter; Physical Education - Men; Brigham Young University; Provo, UT.

Danoff, Jerome; 2507 Cherokee St.; Adelphi, MD.

Garrett, J.T.; Safety and Industrial Hygiene; American ENKA Company; Lowland, TN.

Jack, Martha; P.O. Box 404; Pullman, WA.

Kaleps, Ints; Mathematics and Analysis; AMRL (6570); Wright-Patterson Air Force Base; OH.

Mourant, Ronald; Industrial Engineering; Wayne State University; Detroit, MI.

McNeice, G.M.; Biomechanics; Hospital for Sick Children; Toronto; Ontario, Canada

Panjabi, Manohar; Orthopaedic Surgery; Yale University Medical School; New Haven, CT.

Park, Young-Pi;

Ray, Gautam; Orthopaedics; Tulane University Medical School; New Orleans, LA.

Reddy, Narender; Rehabilitation Engineering; T.I.R.R.; Houston, TX.

Roberts, John; Zoology; University of Massachusetts; Amherst, MA.

Perrone, Nicholas; Structural Mechanics Program; Office of Naval Research; Arlington, VA.

Schuster, R.O.; R.O. Schuster Laboratory; 14-20 130th St.; College Point, NY.

Tiongson, J.A., Rehabilitative Medicine Service; Veterans Administration Hospital; Albany, NY.

Vawter, Donald; Biomedical Engineering; University of Virginia Medical Center; Charlottesville, VA.

Welch, John; Health, Physical Education and Recreation; New Mexico State University; Las Cruces, NM

Wolk, Robert G.; Curator of Life Science; Nassau County Museum of Natural History; Seaford, NY.

Woo, Savio; Bioengineering; University of California Medical School; La Jolla, CA.

REGISTRATION FORM

AMERICAN SOCIETY OF BIOMECHANICS

October 18-19, 1977, Iowa City, Iowa

NAME _____

SOCIAL SECURITY NUMBER (For CEU Credit) _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

Please reserve housing for me at the Iowa House as follows:

Arrival date _____ Departure date _____

I prefer: Single room (currently \$13.50) _____

Double room (currently \$18.00) _____ **

_____ I plan to arrive after 6 PM on (date) _____

Please accept my guarantee for payment of this room reservation.

Do not send payment for housing.

I plan to attend the following activities:

_____ Social hour, 8:00 PM, Monday, October 17th

_____ Lunch, 12:00 Noon, Tuesday, October 18th

_____ Social hour, 5:00 PM, Tuesday, October 18th

_____ Lunch, 12:00 Noon, Wednesday, October 19th

_____ Biomechanics Laboratories Tours (Engineering College, Men's Physical Education, Orthopaedic Surgery, Physical Therapy), 1:30 PM, Wednesday, October 19th.

I enclose a check, payable to the University of Iowa, for \$25.00 for registration.

Please return to:

Director of Conferences
Iowa Memorial Union
The University of Iowa
Iowa City, Iowa 52242

**I plan to share a room with _____