

# American Society of Biomechanics Newsletter

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# **From the President** James A. Ashton-Miller

On Opportunities in Biomechanics Research...

A faculty member from another institution recently asked about biomechanics research opportunities. As a student of biomechanics I am aware that many fields of medicine have interesting biomechanics problems remaining to be solved, whether at the molecular, cellular, organ and/or whole-body level. Some of these fields are markedly underserved by biomechanists and therefore offer rewarding research opportunities. The lists of extramural research priorities of the NIH and CDC are one place to look for ideas.

In the next decade significant contributions will stem from a better understanding of mechanical interactions at the molecular and cellular level in tissue. New measurement techniques are evolving as part of the explosion of knowledge in molecular biology. For example, one can measure the force-displacement behavior and force output of single molecules like myosin to gain a better understanding of muscle contractile mechanics in healthy and diseased muscle. We look forward to hearing more about this at the 2001 ASB meeting in San Diego. There are opportunities for biomechanists familiar with molecular biology to help develop new analytical and experimental techniques for the next generation of tissue engineering efforts. Investigators at all levels have funding mechanisms available to help learn new skills (see, for example, http://grants.nih.gov/training/ careerdevelopmentawards.htm).

Clinical collaborations can sometimes be difficult to initiate, especially when venturing into a new field. Busy physicians have little discretionary time for research, and few have training in biomechanics. Hence, it is rare that physicians will express a problem in biomechanical terms. I often start a conversation by asking the physician to think about a patient group that they wish they could help better. What is it that is hindering better prevention, diagnosis, or treatment? If one can define part of the problem in biomechanical terms, one might ask: "Is this really an important problem to solve?" If we could solve this problem, so what? Unless it makes a real difference, move on to something that is important to solve. Question dogma. It is surprising how often something long held to be true turns out to be false. Dare to start with a simple theoretical model to gain insights, or a simple experiment to test a leading hypothesis. Simple models

can reveal wonderful insights into remarkably complex behaviors, as Thomas A. McMahon showed us. Use more complex models only when simple models cannot suffice.

Remain alert for research opportunities stemming from a serendipitous contact. Some years ago I was directed to call a stranger who had unwittingly removed part of a biological specimen I had waited two years for. After locating the specimen, I happened to ask him about his own research. That simple question initiated a close, decade-long, collaboration. Similarly, a party can bring one into contact with a potential collaborator, so accept that next invitation! In Academe, deans and chairmen would do well to find ways to commingle students and colleagues from different disciplines, for much good can come from it.

There is a particular need to better understand the causes of musculoskeletal disorders. Consider, for example, cumulative trauma disorders (CTD). With over a quarter of a million new CTDs a year, these cost industry huge sums of money every year in medical costs and millions of days lost from work. Not long ago I was asked by a government agency to review available experimental models for studying the mechanisms of one such condition, carpal tunnel syndrome. I found that there is only one reasonable experimental model and even that leaves something to be desired. Biomechanists are needed to develop better

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models to quantify how factors such as tissue type, stress, strain, number of repetitions, duty cycle, loading frequency and rate, age, and remodeling mechanisms affect the development and reoccurrence of symptoms. Given the prevalence of musculoskeletal disorders in the population, given that they increase with age, and given the doubling of the elderly population by the year 2020, opportunities abound to reduce morbidity and mortality through effective research.

Last, but not least, there are opportunities for biomechanists to make significant societal contributions by improving prevention (see, for example, http://www.cdc.gov/niosh/traumado.html/ and http://books.nap.edu/readingroom/books/burden/). The challenge for us is to find better ways to prevent clinical problems before they occur. This is true at any age, from better protecting the fetus and its uteroplacental interface in a car accident to reducing the risk of a centenarian injuring themselves in a fall. It is true for any activity level, from the couch potato to the elite athlete. The old adage, 'an ounce of prevention is worth a pound of cure', rings true. Billions of dollars are spent every year on treating clinical problems and unintentional injuries that are preventable. A Scandinavian study, for example, showed that the rate of ankle injuries, the most common sports injury, can be halved by educating athletes about risky maneuvers and improving their training regimen. Research opportunities exist for obtaining better mechanistic insights regarding risk factors for injury. Once those risk factors are identified and prioritized, research opportunities exist for developing cost-efficient interventions to prevent the clinical problem in as many citizens as possible.

Happy holidays!

# ASB Newsletter Editorial Board

Editor/Layout **Don Anderson** ander284@tc.umn.edu

Calendar Andrew Karduna karduna@drexel.edu

Students' Corner Jeremy Houser jjhouser@bayou.uh.edu

Job Opportunities Kathy Browder browderk@access.etsu.edu

Advertising **Peter Vint** peter.vint@researchintegrations.com

# From the Secretary/Treasurer Rob Shapiro

As I begin my final year as Secretary-Treasurer I would once again like to report to the membership on our activities for the past year. We continued work on our database. Becky Ferguson, our current assistant has refined procedures and helped as we received more credit card payments. This year we are asking members for ethnic background information. This information will be useful in the future as we prepare proposals for annual meeting funding. Please fill out the attachment to your invoice.

At the request of our student membership we have asked regular and emeritus members to indicate if they are willing to serve as "virtual mentors." You will be hearing more about this program.

### Elections:

It is my pleasure to report that Andy Biewener is our new President-elect and Jill McNitt-Gray the new Program Chairelect. At the Chicago meeting, Jeremy Houser was elected the student representative to the board. Congratulations and thanks to all the candidates. Thanks also to the 290 members who voted in this year's election.

### Membership (as of 10/00)

Current membership numbers are:

Regular	523
Student	99
Emeritus	6
Sustaining	1
Corporate	5
Total	634

Our current distribution among membership categories is:

<b>Biological Sciences</b>	7%
Engineering/Applied Physics	52%
Ergonomics/Human Factors	8%
Exercise/Sport Science	18%
Health Science	13%
Undeclared	2%
Gender breakdown:	
Females	23%
Males	77%

While our distributions remained the same as last year our individual membership is down slightly (1%).

### Journal Subscriptions

Once again this year we had relatively few delivery problems with our journal subscriptions. As we complete the last year of our contract with Elsevier Science you will note a \$5 increase in the cost for *Journal of Biomechanics* (\$71), \$2 increases in *Clinical Biomechanics* (\$75.00), *Medical Engineering and Physics* (\$101.00) and *Journal of Electromyography and Kinesiology* (\$98.00). *Gait and Posture* will be available for \$56/year. Human Kinetics has also increased by \$2 the rate for *Journal of Applied Biomechanics* (\$42.00). Please remember that as a result of our contractual arrangement with Elsevier a subscription to *Journal of Biomechanics* is part of ASB membership. The only exception to this rule is for those members who personally receive the journal from elsewhere. This does not extend to members with access to library or office copies. Your understanding of this relationship is appreciated. The Executive Board will be reexamining our relationship with Elsevier and negotiating a new contract. This new contract will need to take into account the access to on-line versions of the journals now being supported by company or university funding.

### Finances (as of 10/00)

The society has experienced a cash flow problem during the past year. As you know we provide a \$5,000 loan to support the annual meeting, with the intent that these funds are repaid at the end of the meeting. At both the Pittsburgh and Chicago meetings unexpected expenses resulted in the society having to cover additional costs such as travel and honoria for the speakers at the Tom McMahon symposium in Pittsburgh. As a result of these unexpected expenses we have had to call in a \$5,000 investment note from American Express. Hopefully, this year we will get back on track with our meeting expenses. Our current cash and investment account balances (as of 10/00) are as follows:

Cash on Hand	\$ 3,950.18
Stock Certificates	\$ 28,683.90
Mutual Funds	<u>\$ 77,463.69</u>
Total	\$110,361.06

We have commitments to the end of this year of about \$5,500. This reflects payments for the printing and mailing of this newsletter (\$2,300) and the salary for our assistant (we owe \$3,250 to cover from July 1 to December 31, 2000). These expenses do not include grants-in-aid that have been awarded. Depending on the status of funds being paid back from the Chicago meeting we may need to access some additional investment funds to meet our 2000 obligations.

The Executive Board will be reviewing ways to cut expenses at the mid-year meeting.

### Annual Dues:

Hopefully, you will have already received your dues notice by the time you receive this issue of the newsletter. You will notice that we are still accepting MasterCard, Visa and American Express payments. The \$3.00 service charge we imposed came very close to covering expenses we incurred as a result of our acceptance of credit cards. Therefore, we will continue the \$3 fee this year. Please make your payment promptly as this enables us to get the journal subscription materials to the publishers in a timely manner. **The deadline for dues payment is January 31, 2001.** Please make sure that the demographic information listed on the invoice is correct.

### **Reminder:**

If you have any questions or concerns about your membership, journal subscriptions or other society-related business please contact me (rshap01@pop.uky.edu) or Becky Ferguson (raferg00@pop.uky.edu).

### Thanks for those prompt dues payments.

# Education Committee Report Julianne Abendroth-Smith

One of the soapbox lectures I subject my students to every semester is on the importance of learning some sort of new movement every so often, be it a new sport or dance or any activity that requires learning motor skills. As professors and practitioners we forget what it is like to be new at something, and taking up a new activity gives us a better appreciation of what is means to be a learner. The vast majority of our students will be involved at some level in working with people. The physical educator is obviously involved in teaching, but the physical and occupational therapist, the physician and physician's assistant, even the researcher who deals with human movement, are all in the position of being teachers, by helping persons to learn or relearn movement-based motor skills.

Recently I found myself in a similar position, this time being a "new" professor, all over again. While not directly involving motor skills, being new is an interesting learning experience. I relocated this past summer to the lower valleys of Oregon after living for seven years in the high hills of Utah. I gave up the big state school with large classes and funding affected by ballot measures for the private liberal arts institution with small classes and a healthy endowment. Both systems have their pluses and minuses, but overall I am pleased with my move. However, being new again is hard. Very hard - although not as hard as being a brand new, just graduated with a doctoral degree professor. For me it has been a good reminder of what it takes to become established at a university, and how hard it is to learn the ins and outs of each unique school and its system of doing things. It reminds me of the frustrations of not always knowing the right questions to ask, and how very grateful I am to have someone to answer questions (or sometimes get answers to questions I did not know that I should even be asking). In this light I want to extend a very big thank you to the seasoned professors who attended the round table luncheon for our ASB student members at the Chicago meeting last summer. Even though I could not attend (since I was in the midst of relocating) I heard from the students just how much your participation was appreciated.

This also brings up the point of ASB's virtual advisor program. In the membership letter you received recently, a notice was included about the program, thats goal is to bring together society members with students in common interest areas. I have served as a virtual advisor for some time now, and one area I field questions is the differences between PhD and EdD degrees, for students considering doctoral programs, since I have an EdD. Another role for virtual advisors can be to assist new professors in their sometimes overwhelming role as teacher, researcher, committee member, committee member, committee member, other service provider, etc. How to keep all four wheels balanced, obtain tenure, and still have some sort of life requires some occasional advice from seasoned professionals. When I think about everyone who has helped me out in my last seven years, I am very grateful; people like Jim Hay, Rick Hinrichs, Phil (continued on page 5)

# ASB Executive Board 2000 - 2001

### President

James Ashton-Miller University of Michigan Department of Mechanical Engineering G. G. Brown 3208 Ann Arbor, MI 48109-2125 Phone: (734) 763-2320 Fax: (734) 763-9332 Email: jaam@umich.edu

## **Past-President**

M. Melissa Gross University of Michigan Division of Kinesiology 401 Washtenaw Avenue Ann Arbor, MI 48109-2214 Phone: (734) 764-9663 Fax: (734) 936-1925 Email: mgross@umich.edu

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Walter Herzog University of Calgary Faculty of Kinesiology 2500 University Drive, NW Calgary, AB T2N 1N4 CANADA Phone: (403) 220-3438 Fax: (403) 284-3553 Email: walter@kin.ucalgary.ca

## **Program Chairperson-Elect**

Jill McNitt-Gray University of Southern California Department of Kinesiology 3560 Watt Way, PED 107 Los Angeles, CA 90089-0652 Phone: (213) 740-7902 Fax: (213) 740-7909 Email: mcnitt@usc.edu

## Membership Committee Chairperson

Scott L. Delp Stanford University Biomechanical Engineering Division Mechanical Engineering Department Stanford, CA 94305-3030 Phone: (650) 723-1230 Fax: (650) 725-1587 Email: delp@leland.stanford.edu

### **Meeting Chairperson**

Richard L. Lieber University of California and V.A. Medical Center Departments of Orthopedics and Bioengineering 9500 Gilman Drive La Jolla, CA 92093-9151 Phone: (858) 552-8585 Fax: (858) 552-4381 Email: rlieber@ucsd.edu

## **Education Committee Chairperson**

Julianne Abendroth-Smith Willamette University Department of Exercise Science Lestle J. Sparks Center Salem, OR 97301 Phone: (503) 370-6423 Fax: (503) 370-6379 Email: jabendro@willamette.edu

# **Communications Committee Chairperson**

Gary Heise University of Northern Colorado School of Kinesiology and Physical Education 2790 Gunter Hall Greeley, CO 80639 Phone: (970) 351-1738 Fax: (970) 351-1762 Email: gheise@hhs.unco.edu

## **Newsletter Editor**

Donald D. Anderson Minneapolis Sports Medicine Center Biomechanics Laboratory 701 25th Avenue South – Suite LL2 Minneapolis, MN 55454 Phone: (612) 672-4747 Fax: (612) 672-4560 Email: ander284@tc.umn.edu

### **Student Representative**

Jeremy Houser University of Houston Department of Health and Human Performance 3855 Holman St. / 104 Garrison Gymnasium Houston, TX 77204-6321 Phone: (713) 743-9915 Fax: (713) 743-9860 Email: jjhouser@bayou.uh.edu

# ASB Newsletter

#### (Education Committee continued)

Martin, Joe Hamill, Kathy Simpson, even Mark Grabiner (I know, that last one is hard to believe, but true). This does not even begin to touch on the number of people that have been instrumental in helping me get started. So think about joining in and putting all that good knowledge to use for someone else.

Remember what it is like to be new at something, whether it is being new in a job or in a sport. Actively learning make you a better teacher. My new sport of the year, besides being a new professor all over again, is darts. The game is Cricket. I hope to see all of you in San Diego at the next annual meeting, and perhaps bend some elbows together as well.

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## AMERICAN SOCIETY OF BIOMECHANICS

# Graduate Program Information

The ASB maintains an on-line database of universities and colleges with graduate programs in biomechanics. The database is organized alphabetically by country and state and currently includes more than 70 institutions from Canada, the United Kingdom, and 32 different states within the US. This is a great resource for undergraduate students who may be considering graduate school as well as for anyone who just wants to find out what's going on at other institutions.

Is your institution included in the database? If not, new information can be sent to Gary Heise at University of Northern Colorado via email: gheise@hhs.unco.edu. Because the information contained in these listings may gradually become outdated as equipment and personnel at laboratories change over time, all institutions are encouraged to review and update their information periodically.

New and updated program information can be tranmitted directly in an e-mail message. Alternatively, an online form can be used to submit updated grad program details.

The graduate program database can be accessed through the Society's internet homepage at:

www.asb-biomech.org

# Students' Corner Jeremy Houser

Greetings, fellow ASB student members. It is a privilege and a honor to serve as your student representative this year. I have had the opportunity to email many of you via the student mailing list and have received many messages in response. If you have not received an email from me, then send a quick note to jjhouser@bayou.uh.edu or contact me via the Student Corner web pages. I will add your info to my list of student members.

I would like to extend my gratitude to our former ASB student representative, Kathleen Costa, for all her work. Among many other duties, she designed and maintained the Student Corner web pages, which have proven to be a very valuable resource for many ASB student members. Thank you, Kathleen, for all your help and I hope all your southern CA ventures serve you well.

The 24th Annual ASB meeting in Chicago was an outstanding collection of tutorials, presentations, discussions, and events. Tutorials on the filtering of data and single subject design were very informative. I suggest that you attend the tutorials at this next meeting. The keynote lectures, the symposia, posters, and podium presentations were all remarkable, and they provided a large variety of learning experiences. Ms. Costa provided a fantastic student luncheon, centered on roundtable discussions with an assortment of topics moderated by select senior researchers. It was an ideal occasion to get to know fellow student members, and some senior researchers, share research ideas, and also to vote for your student representative. The conference venue provided many varieties of entertainment, including the night-life, the museums, Cubs baseball, and the banquet at the impressive Shedd Aquarium. As always, the program committee exceeded any and all expectations. Thank you for your hard work, it is much appreciated.

If you missed the meeting this last July, you will not want to miss the 25<sup>th</sup> Annual ASB meeting at the University of California -San Diego on August 8 - 11, 2001. Being a milestone year (25<sup>th</sup> Annual), it promises to be an exceptional conference. Also, who could resist the splendor of southern California? As the student representative, my goal is to integrate as many quality student events into the meeting as time will allow. This will include opportunities to meet other students and established researchers to foster contacts and resources for future success as biomechanists. I look forward to meeting you all in San Diego.

As the ASB Student Representative, my primary duty is to function as an intermediary between the ASB Executive Board and the student members. Other duties include organizing the student luncheon, maintaining the student corner web pages, communicating with students via email, etc. I am receptive to any ideas that you would like to give me concerning the student web pages, the luncheon, or any other issues that you may have.

I appreciate your attention and time. You can always contact me at jjhouser@bayou.uh.edu with any questions or concerns that you may have. Good luck with all your endeavors.

# ASB Graduate Student Grant-In-Aid Program 2000:

## \*\*\* Update \*\*\*

The recipients of the 2000 ASB Grant-in-Aid have been determined. Congratulations go to: Matthew McHenry, Alicia Koontz, and Rebecca Lehman. The process was very competitive this year, with a number of excellent proposals. The topics of the proposals spanned the field of biomechanics, as reflective of the diverse interests of our membership. The following were the titles of the funded proposal this year:

- Matthew McHenry: How does morphology affect helical swimming in ascidian larvae? Department of Integrative Biology, University of California, Berkeley, CA.
- Alicia Koontz: Fabrication of a digitization probe for use in wheelchair propulsion studies. Department of Rehabilitation Science, University of Pittsburgh, Pittsburgh, PA.
- Rebecca Lehman: Cyclic deformation of modified UHMW polyethylenes. Case Western Reserve University, Cleveland OH.

Again, congratulations to the winners. We hope to see the fruits of their research at the next ASB meeting!

-Mark Redfern



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# ASB Graduate Student Grant-In-Aid Program 2001:

## \*\*\* First Announcement \*\*\*

# **REQUEST FOR LETTERS OF INTENT** Deadline: February 1, 2001

The ASB Graduate Student Grant-in-Aid Program is now in its fourth year of operation. The purpose of the Graduate Student Grant-in-Aid Program is to aid and encourage student members of ASB in pursuing biomechanics research by offering a source of research funding. Awards, which will be distributed on a competitive basis, are meant to offset the costs directly associated with conducting the research. Funds may be used for small equipment items, materials and supplies, and animal or subject costs, but cannot be used to support travel costs or salaries.

The Executive Board anticipates making 3-5 awards for the fourth funding period that will begin Sept. 1, 2001. Award amounts are expected to range from \$500 to \$2500 for a one-year period. Students must be members of ASB or have a membership application pending no later than February 1, 2000 to be eligible for an award. In addition, expected graduation date should not be earlier than December, 2001.

A two-stage review process will be used. Interested students must first submit a letter of intent that is postmarked no later than **February 1, 2001**. Submissions by electronic mail (Word or ASCII text) will also be accepted. The letter of intent should identify: 1) the significance of and need for the research to be conducted, 2) specific aims and hypotheses to be examined, and 3) a brief overview of the methods to be employed. The letter of intent should not exceed two single-spaced pages. Page margins should not be less than 2.5 cm and font size not less than 11 point.

Those who receive a favorable review at this stage will be invited to submit a full research proposal by May 1, 2001. The funding cycle will run from September 1, 2001 to August 31, 2002.

Letters of intent should be submitted to:

Mark S. Redfern, Ph.D. Human Movement and Balance Laboratory 110 EEI Building 200 Lothrop St. Pittsburgh, PA 15213 email: redfernms@msx. phone: (412) 647-7923



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# Guest Columnist

Nick Stergiou

## **Archimedes: An Early Biomechanist**

A graduate student of mine recently ran in my office and told me that an old book written by Archimedes was in the headlines. A private collector who bought the book in 1998 for \$2 million agreed to put the text on display at The Walters Art Gallery in Baltimore. When the exhibition is over, the book will be analyzed by an international team of specialists using state of the art imaging techniques. What caught his eye was that the book was identified in the Yahoo News as a biomechanical textbook! Being a Greek and a biomechanist, I shared the enthusiasm of my graduate student and we had a conversation about Archimedes. Coming out of the Greek secondary educational system, I had learned a lot about these ancient Greek scientists and had plenty to share with my student.

Archimedes was a great inventor, mathematician, and engineer of the ancient times. He was born in Syracuse, the largest Greek settlement in Sicily and a colony of Corinth, around 287 BC. Tradition says that he did both his "undergraduate and graduate" work at Alexandria which was the best "university" at his time. His "mentor" was probably a disciple of Euclid, another famous Greek mathematician. Following his education he returned to his hometown which was a thriving metropolis at his time and spent the rest of his life there.

To fund his research, he applied to the local NSF, his king Hiero. As with all funding agencies, he had to convince Hiero of the soundness of his research. His research at that time was on pure mechanics since he invented levers and their laws, and the pulley. So, in front of his king he used some of his pilot data and he said: "Give me a place to stand on, and I will move the earth." Of course, he was referring to the way levers can assist humans to move objects many times larger than them. In his "grant



Archimedes: The Ingenious Engineer by Christos D. Lazos, Aiolos Publishers, Athens, 1995 (in Greek). proposal," he included a demonstration of a system of levers moving a ship fully loaded with passengers and freight.

Using his initial funding, he discovered among others that every object has a center of gravity, and he developed the principle of buoyancy. It is quite interesting how he actually came up with this latest principle. King Hiero asked him to evaluate a new royal crown for which he provided solid gold to a goldsmith. The King was suspicious that the goldsmith had added silver to the crown and kept some of the gold for himself. This project was out of Archimedes' line of research and the famous Greek had a hard time with it. After many pots of coffee and hard work in the laboratory, he decided to take a bath. He noticed that the full bath overflowed when he lowered himself into it, and realized that he could measure the crown's volume by the amount of water it displaced. From his extensive research on volumes, he knew that since he could measure the crown's volume, all he had to do was weigh it in order to calculate its density and hence its purity. Archimedes was so happy about his discovery that he went out in the busy streets of Syracuse naked shouting, "Eureka" which in old Greek meant "I found it!"

Another time, King Hiero was unable to empty rainwater from the hull of one of his ships. Archimedes created a machine with a hollow tube containing a spiral that could be turned by a handle at one end. When the lower end of the tube was placed into the hull and the handle turned, water was carried up the tube and out of the ship. Known as the Archimedes Screw, this tool is still used for irrigation in developing countries.

Archimedes spent a lot of his research endeavors exploring theoretical mathematics. He realized that this way he could get many manuscripts out and quickly develop a strong vita to support his grant proposals. He invented the method of exhaustion, an early form of integration, to identify the area of figures bounded by curved lines or surfaces. This method is characterized as a proponent of calculus. Using this method, he estimated the value of PI ( $\pi$ ) by inscribing and circumscribing a circle with a 96-sided regular polygon. Archimedes also proved that the volume of an inscribed sphere is two-thirds the volume of a circumscribed cylinder. He requested that this formula/diagram be inscribed on his tomb!

Archimedes had some problems with plagiarism. As he wrote in the preface of one of his books, he used to send his latest theorems (but without giving proofs) to some journals with high impact factors at Alexandria. Some of the mathematicians there had claimed the results as their own. So, Archimedes in his book wrote that on one occasion, when he sent them theorems, he included two which were false "so that those who claim to discover everything, but produce no proofs of the same, may be confuted as having pretended to discover the impossible."

The Army was also a major funding source for him. They supported his work on mechanics and Archimedes designed for them several machines to defend Syracuse from the Romans. He developed huge cranes, dubbed Archimedes' claw, which could pull enemy ships out of the water, twist them around, and abruptly dump them in the water. Catapults were another piece of machinery that he designed, capable of throwing heavy rocks at the enemy. Lastly, he engineered a system of mirrors that reflected and focused the sun's rays to set enemy ships on fire.

Unfortunately, when the Romans finally broke the siege, a tragic end awaited Archimedes. He was working out a problem, drawing diagrams on the sand, and he never noticed that the city was taken. A Roman soldier unexpectedly came up to him and accidentally stepped on his diagrams. Archimedes snapped at him and said "Me mu tus Keklus tarate," which meant "Don't disturb my circles!" Enraged and thinking that Archimedes was cursing him, the Roman soldier drew his sword and ran it through him in 212 BC.

Was Archimedes a biomechanist? I am not sure, but he definitely affects what we, biomechanists, do on a daily basis working with levers, hydrostatics,  $\pi$ , and many other of his discoveries and theorems. There is much of him in each and every one of us regarding love for science and discovery. The fact that one of his books has recently been purchased and is making international headlines 220 years after publication speaks to his continued influence on science and society.

**EDITOR'S NOTE**: Dr. Stergiou is an Assistant Professor at the University of Nebraska at Omaha. For more detail regarding Archimedes' life, visit http://www.mcs.drexel.edu/~crorres/ Archimedes/contents.html. This website is where the Claw figure was obtained by the editor. Call for papers ... ASB 2001

Abstracts for the ASB 2001 conference need to be submitted electronically in PDF (Acrobat Reader) format in duplicate. One of the abstracts contains all information, the other is a blinded copy (i.e. identical to the first abstract except for omission of authors' names and affiliations.)

The formatting of the abstracts and further information about abstract submission can be found on the ASB website at www.asb-biomech.org/ conference/conference.html. **The deadline for abstract submission is March 01, 2001.** All abstracts must be sent to Gary Heise at gheise@hhs.unco.edu

All abstracts will be peer-reviewed and notification of acceptance/rejection will be sent to the corresponding author (only) by May 15, 2001.



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# Into the Woods

Don Anderson



## First, an aside...

You are currently reading the first ASB Newsletter produced without Joe Hale's hands directly involved as Editor since 1995, and I for one would like to take this opportunity to thank Joe for all his efforts during those years invested in producing this topnotch newsletter. I have always found the newsletter to be informative and enjoyable to read, gracefully delivering both at once. I will do my best to continue the quality work that Joe has performed in the past. In turn, I rely on you, the members of ASB, to provide the quality content which drives a newsletter. Well done, good and faithful servant Joe Hale!

With this issue also comes a new Newsletter Editorial Board, and I would also like to recognize and extend my appreciation to them: Kathy Browder, Andy Karduna, Jeremy Houser, and Peter Vint. These individuals make my job easier by contributing their time and effort with little recognition other than a byline or occasional mention in the Newsletter.

In setting out to write this editorial, I have been struck by how much effort it can take to generate so little text of such little significance. With your indulgence, I will try to put this space to good use. Please keep in mind that text written in this space is filled with my opinion and my observations, not always filled with facts. Sometimes I will strive to distinguish which is which for you, other times it will be your own responsibility!

## To PDF or not to PDF...

No doubt the astute among you have by now realized that this Spring's ASB abstract submission process is going to involve generating an abstract in PDF file format. PDF as in Portable Document Format, Adobe Systems Inc.'s Acrobat Reader file format. Adobe likes to talk about this file format within their vision of ePaper, an electronic document distribution scheme aimed at producing a paperless office. I wanted to take just a few minutes to focus on some of the intricacies of using PDF files and to point you to some useful resources for steering your way through these sometimes murky waters.

First, some background. Adobe PDF is a universal file format that ideally preserves all of the fonts, formatting, colors, and graphics of any source document, regardless of the application and platform used to create it. PDF files are compact and can be shared, viewed, navigated, and printed exactly as intended by anyone with a free Adobe Acrobat Reader. You can convert any document to Adobe PDF, even scanned paper, using Adobe Acrobat 4.0 software. Of note, PDF is an open standard, meaning anyone can take a stab at creating their own PDF creation and/ or reading tools on whatever computing platform (more later).

Adobe PDF is the ideal format for electronic document distribution because it transcends the problems commonly encountered in electronic file sharing.

### **Common Problems**

### Adobe PDF Solutions

• Anyone, anywhere can open

a PDF file. All you need is the free Acrobat Reader.

exactly as created, regardless

- Recipients can't open files because they don't have the applications used to create the documents.
- Formatting, fonts, and graphics are lost due to platform, software, and version incompatibilities.
- Documents don't print correctly because of software or printer limitations.
- of fonts, software, and operating systems.PDF files always print

• PDF files always display

• PDF files always print correctly on any printing device.

### Adobe PDF also offers the following benefits:

- PDF files can be published and distributed anywhere: in print, attached to e-mail, on corporate servers, posted on Web sites, or on CD-ROM.
- The free Acrobat Reader is easy to download from Adobe's website and can be freely distributed. More than 110 million copies have been downloaded or preloaded onto PCs.
- Compact PDF files are smaller than their source files and download a page at a time for fast display on the Web.
- Using Acrobat 4.0 software, bookmarks, cross-document links, Web links, live forms, security options, sound, and video can be added to PDF files for enhanced online viewing.

What's the bottom line? If you share documents electronically, you should be doing it in Adobe PDF.

Where did I shift into Adobe propaganda there? I can't quite remember just when (it may have been somewhere near the word



"transcends"), but clearly, there is plenty of hype associated with the Acrobat product. And what the product promises to deliver may at times be at odds with what it actually does deliver.

The full Acrobat software product can be a bit expensive, although academic discounts afforded some can soften this blow (around here, the product is available to the University for \$99). People may complain that they have to buy additional software in order to generate a PDF file (a process called "distilling" by Adobe). This may or may not be true. As I mentioned earlier, the PDF file format is an *open* standard. There are freeware / shareware (free or inexpensive software) alternatives that allow an individual to distill a PDF file on either PC, Macintosh or other computer platforms. Most present themselves to your system as a unique printer driver, meaning that any application that can print, can save files in PDF file format via printing to a "virtual printer." To help you get started, here are pointers to a few shareware and freeware programs that you can download from the web:

For Macintosh: www.jwwalker.com/

For PC: www.daneprairie.com/ www.over.to/freepdf/

For a more comprehensive listing of alternatives, with a fancy front-end to guide you, visit the PDFZone at:

www.pdfzone.com/products/software/toolinfo\_convert.html

Once you have installed a PDF-distilling program on your computer, all that you need to do is to print to PDF instead of to your printer and these programs will automatically create a PDF version of your original file.

Whatever the software you use to create your PDF file, it is very important that you realize that you have some say in how well the PDF file format serves your needs. Let us begin with a couple of pointers for those inexperienced with PDF file format. First, recognize that the modern electronic document is at its core a conglomeration of words, formatted text, and embedded graphics (let's not even get into embedded animations/videos or URL's!).

In order for a PDF file to retain a high fidelity rendering of the original document, it must have appropriate font and graphics information at its disposal. So, given a chance, always embed your fonts into a PDF file. It may take some exploring with a given piece of PDF-distilling software in order to find how to control the distillation. When you generate a PDF file without embedding fonts, how your document appears on another computer will be highly dependent on the fonts which are available on that computer (i.e., out of your control).

Likewise, consideration must be given to how graphical elements are embedded into the PDF file. A point sometimes missed is that PDF file formats are intended to be optimized for their final purpose. That is to say, a PDF file destined to be accessed over the web may be dramatically different than one slated for high resolution printed output. The files will vary both in size and in complexity, the web-based one incorporating sophisticated graphics compression schemes and downsampling of graphics resolutions to minimize file size, the hi-res printed one sparing



no effort (read as *large file*, sometimes extremely so) to print beautifully on whatever media.

It is hard to deny the utility of a platform and computerindependent electronic document. All that layout time you invest in creating the perfect abstract can be wasted when you naively send a "simple" electronic document to another person. The old days of paste-up abstracts are fast being replaced by electronic documents with embedded graphics and highly formatted layouts. One considerable benefit for the ASB associated with moving to PDF abstract submission is that these electronic documents greatly facilitate the process of generating a Proceedings booklet for a given meeting. Likewise, the process of creating a searchable online archive of abstracts from past ASB meetings is greatly simplified.

I believe once you start using PDF, you won't be able to understand how you ever did without it. One of the most useful benefits for me has been the ability to reliably distribute documents through e-mail. In the past I had used a variety of other document formats which I mistakenly thought would translate well across platforms. Now, I use those same applications to create my documents, but when I am done I convert them to PDF before distributing. A fairly painless step delivers for me.

I want to share with you a final secret use for the PDF file: laptop presentation on the road. I refuse to give up my Apple Powerbook, but on occasion I need to give a presentation using a Wintel machine. By turning my Powerpoint presentation into a PDF file, I take many of the variables out of the equation for seamless projection of my Mac-based presentation. I can usually fit the Acrobat Reader installer on my Zip disk or CD as well as my presentation to ensure that whatever machine I end up using can accommodate my PDF file.

Just remember two things as you are creating that PDF file to be submitted as an ASB abstract:

1. Embed fonts at the time of PDF file creation.

2. Tweak graphics files to optimize appearance / file size. Finally, do yourself a favor, and sort out some of these PDF file creation issues well in advance of the abstract submission deadline. You'll be glad you did when the deadline comes.



## ASB Newsletter

# **Communications Committee**

## Gary Heise

The membership owes a huge debt of gratitude to **Gerry Smith**, former Communications Chair, for his many hours of hard work in developing the "electronic" presence of ASB. The web site he developed is organized, informative, and quite user-friendly. The most impressive accomplishment is the compilation of proceedings from the last five annual meetings. In my mind, this represents pioneering work, which has not been matched by other professional societies. I'm sure our electronic proceedings library has been helpful to many in our membership ranks. Thanks again Gerry. We will try to maintain the excellent standard you set.

### San Diego, 2001

The next annual meeting in San Diego, CA (August 8-11, 2001) will represent another step in the evolution of electronic communication that Gerry Smith began. All abstracts must be submitted in Portable Document Format (PDF). The ASB web site (www.asb-biomech.org) will detail formatting instructions. We will not change our 2-page, 2-column format of prior years, but be aware that when you produce a PDF file, some minor formatting changes may occur. For example, if you produce an abstract in Microsoft Word and it barely fits on two pages, do not

be surprised if it spills onto three pages when converted to PDF. On my campus, several computer labs have Adobe Acrobat for producing PDF documents and the Kinko's copy center in town also has the software. Finally, if you work at a university, the educational price of Adobe Acrobat is approximately \$99.00. We realize some experimentation on your part will be required, but this submission procedure will streamline the review process and ease the burden on the meeting organizers.

Abstracts for the San Diego meeting are **due March 1, 2001**. You must e-mail two versions of your abstract (one version must be blind – no authors or affiliations) as PDF files. These files should be attached to an e-mail note and sent to me (gheise@hhs.unco.edu). Details can be found on the ASB web site's Annual Conference link.





# **Commercial Members**

Commercial membership categories are aimed at encouraging affiliation by commercial organizations that market products which are used by the biomechanics research community, or companies that are otherwise engaged in activities that fall within the Society's general interest areas. The benefits and fees for Commercial Members of the Society have been reorganized. Based on level of support, commercial membership categories in decreasing order are Sustaining Member, Supporting Member, Contributing Member, and Corporate Member. Companies wishing to become a Commercial Member are encouraged to contact either Scott Delp or James Ashton-Miller (page 4) for details.

The ASB Executive Board is pleased to recognize:

SUSTAINING MEMBERS Peak Performance Technologies, Inc.

### CONTRIBUTING MEMBERS

Motion Analysis Corporation

CORPORATE MEMBERS Aircast **DePuy** 

# Orthofix, S.R.L.

Tekscan

All members of the Society are invited to suggest names of potential commercial members. Please send your suggestions to Scott Delp, Membership Committee Chairperson, at the address indicated on page 4 of this newsletter. If you have a particular contact person at the company, please make sure to include his/her name.

# Advertising in the ASB Newsletter

The Editorial Board invites various businesses and corporations that have products or services of interest to members of the Society to advertise in the ASB Newsletter. Advertising space may also be purchased for job postings or other special announcements.

The current advertising rates are as follows:

1/4 page	\$75
1/2 page	\$150
full page	\$250
back page	\$500
separate insert	\$500 per insertion

If you are interested in placing an advertisement or have any information concerning potential advertisers, please contact Peter Vint at (peter.vint@researchintegrations.com).

## We Need Your Contribution

Members are encouraged to contribute to the newsletter. A note, a letter to the editor, a lead on an interesting story, information about a scientific meeting, in fact anything of interest to the ASB membership would be most welcome. Send information scrawled in longhand, via e-mail, or on computer diskette for PC or Macintosh. If you have any other ideas, please get in touch. The next newsletter will be published in June 2001. Deadline for submission of materials is 20 **April 2001!** 





## AMERICAN SOCIETY OF BIOMECHANICS 2001 ANNUAL MEETING INFORMATION



**LOCATION** Price Center Ballroom, University of California, San Diego August 8-11, 2001

### FOR FURTHER INFORMATION

University of California, San Diego Office of Continuing Medical Education La Jolla, CA 92093-0617 Toll free (888) 229-6263 or (858) 534-3940, FAX (858) 534-7672 Visit us at http://cme.ucsd.edu

#### ACCOMMODATIONS

A block of rooms has been reserved at the UCSD Residence Halls for participants of this conference. Each facility includes 3 meals, served daily, linens and a parking permit. They are within walking distance to the conference. Please note: *This is true "dorm-living"* meaning that the accommodations are very basic. For Reservations call the UCSD Office of Continuing Medical Education at (888) 229-6263 or (858) 534-3940.

#### Thurgood Marshall Apartments

\$73.00 per person - single occupancy \$63.00 per person - double occupancy Muir Residence Hall

\$66.00 per person - single occupancy \$58.00 per person - double occupancy

A block of rooms has also been reserved at the Radisson Hotel La Jolla, across the street from the UCSD campus. A special rate of **\$139 Single or \$149 Double** is available for participants of this program. Please make your reservations as early as possible and prior to **June 7, 2001**. Be sure to identify yourself as a participant of the 2001 ASB conference. Contact the **Radisson Hotel La Jolla**, 3299 Holiday Court, La Jolla, CA 92037. Telephone: (858) 453-5500. FAX: (858) 453-5550.

### TRAVEL

Top Flight Travel has been chosen as the official travel agency for this conference. Top Flight's knowledgeable staff are at your service Monday-Friday, 9a.m.-5p.m. PST. Call Top Flight Travel at 1-800-374-4359 or (760) 634-1415. Please identify yourself as a UCSD Conference attendee to receive the lowest available rate.

Call United Airlines direct at 1-800-521-4041 and ask for Tour Code #555JS. Call American Airlines direct at 1-800-433-1790 and ask for Star #12443.

**Discount Car Rentals**: AVIS has been selected as the official car rental company for this meeting. Call (800) 331-1600 and refer to AVIS World Wide Discount #K261610.

Mail to: Registration, Office of Continuing Medical Education, La Jolla, CA 92093-0617. Toll Free (888) 229-6263 or (858) 534-3940 FAX (858) 534-7672, http://cme.ucsd.edu

FEES:	Before 6/7	After 6/7		Before 6/7	After 6/7
Members	\$220	\$250	Student Members	\$30	\$45
Non-Members	\$265	\$295	Student Non-Members	\$50	\$65
Labs or Tutorials	\$50 each				
Name Address City			State		 Zip
Phone	1	Fax	Fmail		-
		I u.X	Eman		

**SPONSORED BY** University of California, San Diego American Society of Biomechanics

# **Calendar of Events**

Andrew Karduna

### **46th Annual Meeting of the Orthopaedic Research Society** February 25-28, 2001, San Francisco, CA

Abstract deadline past http://www.ors.org

### 6th Annual Meeting of the Gait and Clinical Movement Analysis Society

April 25-28, 2001, Sacramento, California Abstract deadline past www.gcmas.org

# 2001 American College of Sports Medicine Annual Meeting

May 30 - June 2, 2001, Baltimore, Maryland Abstract deadline past www.acsm.org/conferencesmeetings.htm

#### 4th Combined Meeting of the Orthopaedic Research Societies of the USA, Canada, Europe and Japan

June 1-3, 2001, Rhodes, Greece Abstract deadline - November 1, 2000 http://www.ors.org

### 19th International Symposium on Biomechanics in Sport

June 20-26, 2001, San Francisco, California Abstract deadline - February 15, 2001 John Blackwell, PhD - (415) 422-6615 blackwell@usfca.edu http://www.usfca.edu/ess/sym2001

### 2001 Summer Bioengineering Conference

June 27 - July 1, 2001, Snowbird, Utah Abstract deadline - December 15, 2000 Geert W. Schmid-Schönbein, PhD - (858) 534-3852 gwss@bioeng.ucsd.edu www.asme.org/divisions/bed/summer01.html

# 18th Congress of the International Society of Biomechanics

July 8-13, 2001, Zurich, Switzerland Abstract deadline - November 15, 2000 Lisa Rohrer - (+41) 01-633-6117 rohrer@biomech.mat.ethz www.isb2001.ethz.ch

### **3rd International Symposium on Progress in Motor Control**

July 16-18, 2001, Montreal, Canada Mark Latash, PhD - mll11@psu.edu http://isb.ri.ccf.org/conferences/montreal.txt

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# 25th Annual Meeting of the American Society of Biomechanics

August 8-11, 2001; San Diego, California Abstract deadline - March 1, 2001 Rick Lieber, PhD - rlieber@ucsd.edu *asb-biomech.org/conference/conference.html* 

# **45th Annual Meeting of the Human Factors and Ergonomics Society** October 8-12, 2001, Minneapolis, Minnesota *hfes.org*

**7th International Symposium on the 3-D Analysis of Human Movement** 2002, Erlangen, Germany

**4th World Congress on Biomechanics** 3-8 August 2002, Calgary, Canada

\* \* \* \*

NOTE: For a more comprehensive international listing, please visit ISB's website at: *isb.ri.ccf.org/conferences* 





# Attention ASB Members

If you are interested in becoming more active in the Society (e.g., serving on a committee or chairing a conference session), contact Julianne Abendroth-Smith, Education Committee Chair (page 4) with your name, address, phone/fax number, email address, and your desired involvment. This information will be included in a data base which is periodically updated and distributed to the Executive Board. **Thanks!** 

# **Job Opportunities**

Kathy Browder

### FACULTY POSITIONS

Kinesiology - Assistant Professor: Qualifications: Ph.D. in biomechanics or motor behavior, demonstrated excellence in undergraduate teaching and advising, skills in the applications of technology to instruction; affiliation with ACSM and knowledge of ACSM certification programs desirable. Strong commitment to teaching effectiveness and scholarship. Responsibilities: Instruction in biomechanics, motor behavior, motor learning, motor control. Send letter of interest, CV, evidence of teaching effectiveness, and three letters of recommendation to: Assistant Professor of Kinesiology, Job #9925; Southwestern University, Office of Human Resources; P.O. Box 770; Georgetown, Texas, 78627-0770. Website: www.southwestern.edu. Start date: Fall 2001. Deadline: Until filled.

**Engineering - Endowed Professor:** Alden J. Laborde Professor of Biomedical Engineering. <u>Qualifications</u>: Established leader in field, with record of research and teaching accomplishments eligible for appointment as a Full Professor in Biomedical Engineering. <u>Responsibilities</u>: Add breadth and depth to existing research and teaching activities in biomechanics, biomaterials, bioelectricity and bioelectonics, cell and tissue engineering, and design. Send description of current and planned research and teaching activities, CV, and names and addresses of 3 references to: Richard T. Hart, Ph.D.; Faculty Search Committee; Department of Biomedical Engineering; Boggs Center, Suite 500; Tulane University; New Orleans, Louisiana 70118-5674. Website: *http://www.bmen.tulane.edu*. Start date: 7/01/01. Deadline: 1/15/01 or until filled.

Kinesiology and Health - Director: Qualifications: Doctorate in exercise science, health education, kinesiology, physical education, public health, or related field. Experience leading diverse groups, strong research program with a record of successful grant activity, firm understanding of faculty development, broad professional focus, collegiate-level teaching and leadership eligible for appointment at the senior faculty level. Responsibilities: Build aggressive research program, develop strong external funding, supervise faculty and academic professionals, guide the undergraduate and graduate programs, maintain some undergraduate/graduate teaching responsibility, foster interdisciplinary activities, budget management, student recruitment and retention, faculty development, and preparation of various internal and external reports. Send CV, cover letter, 3 letters of recommendation to: Scott Henderson, M.D.; Chair, Search Committee for Kinesiology and Health; c/ o Dean's Office; College of Health Sciences; P.O. Box 3432; Laramie, WY 82071-3432. TEL: (307) 777-7911; E-mail: shenders@uwyo.edu; Website: www.uwyo.edu/kandh. Start date: 8/01/00. Deadline: 11/30/00 or until filled.

Neuromuscular Rehabilitative Exercise - Assistant Professor: Qualifications: Doctoral degree. Ability to teach undergraduate and graduate courses in neuromuscular rehabilitative exercise; experience working in a long-term, neuromuscular rehabilitative exercise program for people transitioning out of medical treatment and physical therapy; ability to interface with people and agencies in local communities; familiarity with adapted physical education, athletic training, or physical therapy; identifiable program of research in neuromuscular rehabilitative exercise; ability to work effectively in scholarly and professional service activities beyond the campus; ability to seek external funds through grants and contracts. Send letter of application, CV, 3 current letters of reference, transcript indicating highest degree earned, and several samples of scholarly work to: Dr. Janet C. Harris, Chair, Department of Kinesiology and Physical Education, 5151 State University Drive, Los Angeles, CA 90032-8162. TEL: (323) 343-4650; FAX: (323) 343-6482; E-mail: kpedept@calstatela.edu; Website: www.calstatela.edu/academic/hhs/. Start date: Fall 2001. Deadline: 11/13/ 00 or until filled.

**Exercise Science** – **Assistant Professor:** Qualifications: Ph.D. in Biomechanics/Kinesiology, or related field; two or more years of post-doctoral experience preferred; evidence of potential for research or a current research agenda and successful grant writing; expertise in aging/geriatrics or

women's health as related to biomechanics. Sub-specialties in assessment of sport performance, conditioning and fitness, sports nutrition, or motion/ movement analysis. PT, ATC, NSCA, and/or ACSM preferred. <u>Responsibilities</u>: Instruct and advise at undergraduate and graduate level in kinesiology/biomechanics; provide leadership for undergraduate exercise testing or motion analysis labs; conduct independent and collaborative research, grant writing and pursue external funding; direct and serve on theses committees, serve on departmental and university committees and provide appropriate community service. Send letter of interest, CV, unofficial transcripts, 3 letters of recommendation, statement of interest relative to job description, and summary statement of research interests and professional goals to: Paula Papanek, Ph.D., MPT, FACSM; Search Committee, Exercise Science; Marquette University; PO Box 1881; Milwaukee, WI53201-1881. Website: www.mu.edu/chs/es. Start date: 08/01/01. Deadline: 1/15/01 or until filled.

**Exercise Science – Assistant Professor:** Qualifications: Doctorate in exercise science or related field required. Evidence of interest in and success with college teaching required. Must demonstrate skill with the integration of spreadsheet applications and presentation graphics software in student learning experiences. <u>Responsibilities</u>: Teach undergraduate courses in the core curriculum. Direct student learning about the health benefits of physical activity in a writing intensive course. Other teaching in introductory material in exercise science, exercise physiology, exercise prescription, and elements of exercise adherence possible. Prepare graduate students for careers in college teaching. Send letter of application, resume, and 3 letters of reference addressing teaching competence to: Sandy K. Beveridge; Chair of Search Committee; Department of Exercise and Sport Science; University of Utah; 250 S. 1850 E., Room 245; Salt Lake City, UT 84112-0920. E-mail: sandy.beveridge@health.utah.edu. Start date: 08/01. Deadline: 12/01/00 or until filled.

**Biomechanics/Athletic Training – Assistant Professor:** Qualifications: Doctorate in Biomechanics or closely related field. NATABOC certification. Blend of experience in practice, university instruction, and research emphasizing injury etiology/biomechanical mechanisms is desirable. <u>Responsibilities</u>: Provide instruction and professional/academic guidance in the Department of Human Kinetics. Send letter describing teaching experience and research agenda, CV, graduate transcripts, samples of published research, and contact information for 3 references to: Dr. Kyle Ebersole; Co-Chair, Search and Screen Committee; Department of Human Kinetics - PO Box 413; University of Wisconsin-Milwaukee; Milwaukee, WI 53201-0413. TEL: 414-229-5553; FAX: 414-906-3973; E-mail: ebersole@uwm.edu.Website: www.uwm.edu/Dept/BUSOFC/position.html. Start date: 08/20/01. Deadline: 12/11/00 or until filled.

Athletic Training – Director & Assistant Professor: Qualifications: Ph.D. in athletic training preferred (physical education, biomechanics, motor learning, or exercise physiology acceptable) or DPT; NATA certified athletic trainer; minimum 3 years athletic training experience; current CPR certification; demonstrated excellence in teaching and record of research and/or publications; evidence of administrative experience. <u>Responsibilities</u>: Teach undergraduate courses; perform research within area of expertise; oversee NATA accreditation of Athletic Training program; mentor and advise undergraduate students; serve as a liaison between Chapman University's Athletic Training program and local high schools and regional sports teams. Send cover letter, resume, evidence of qualifications, including recent presentations or publications, and list of 5 references with telephone numbers to: Jim Herkimer; Department of Kinesiology; Chapman University; Orange, CA 92866. E-mail: herkimer@chapman.edu. Start date: 08/01. Deadline: 1/02/01 or until filled.

**Physical Therapy Education – Director:** Ph.D. degree and eligible for licensure in Maine. Should demonstrate excellence in teaching and scholarly activities, be familiar with curriculum design or evaluation, have a clear vision for the future development of the Physical Therapy program, including faculty development and innovation in advanced academic and clinical education. Send letter of application describing research and teaching interests, CV, evidence of research, teaching, and administration, and the names and addresses of 3 references to: Ben Sidaway, Ph.D.; Chair, Search Committee; Department of Physical Therapy; Husson College; Bangor, Maine 04401. Tel. 207-973-1099; E-mail: sidawayb@husson.edu.

**Physical Education and Exercise Studies – Division Chair:** Qualifications: Earned doctorate in one of the division's disciplines, experience deserving an appointment at the rank of associate professor or professor, evidence of teaching excellence, significant scholarly achievement, service activities, successful administrative experience, excellent communication and interpersonal skills. <u>Responsibilities</u>: Responsible for eight faculty members, 170 majors, three major programs and the supervision of a 70,000 SQ FT facility (opened in 1993); coordinates the General Education Wellness course; and teaches 6 hrs during fall and spring terms each. Send letter addressing qualifications, CV, and names, addresses, and phone numbers of 3 references to Dr. Friederike Wiedemann; Vice President for Academic Affairs; Lander University; Greenwood, SC 29649. Start date: 07/01. Deadline: 1/03/01 or until filled.

**Physical Education - Lecturer:** Qualifications: Master's Degree in Exercise Science or closely related field (e.g. sports medicine). Experience and demonstrated expertise in flexibility, strength and injury prevention topics (NSCA or NATA certification preferred), evidence for excellence in teaching in group and individual settings. <u>Responsibilities</u>: Teach undergraduate courses in the Principles of Physical Fitness (PPF) Program, coordinate flexibility, strength and injury prevention curriculum for PPF, advise PPF students and faculty in these topics, and assume assigned administrative duties in the department. Send letter of interest, CV, and 3 letters of recommendation to: Jill E. Welkley, Ph.D. Associate Professor; Chair, Principles of Physical Fitness Search Committee; Department of Health, Physical Education and Dance; WPEC, Emory University; Atlanta, Georgia, 30322. Start Date: Fall 2001. Deadline: 1/1/01 or until filled.

**Exercise Science - Instructor:** Submit district application, copies of all college/university transcripts (official or unofficial) to: Grossmont-Cuyamaca Community College; Personnel & Equal Employment Opportunity; 8800 Grossmont College Drive; El Cajon, CA 92020-1799. TEL: (619) 644-7637; Website: *www.gcccd.net*.

Health Professions - Dean: Qualifications: Earned doctoral degree appropriate within College of Health Professions; teaching and scholar-ship consistent with the rank of the position and eligibility for graduate faculty status; administrative experience in higher education including management of complex budgets; history of collaborative relationships within health care systems and working with regulatory and accrediting agencies; strong record of health care experience. Responsibilities: Provide leadership and vision for the College of Health Professions; serve as advocate for needs and programs of the College of Health Professions including graduate education and off campus centers; support faculty in teaching, professional development, and intellectual contributions; support assessment by disseminating and using data in decision making. Send letter of application, CV, a statement of educational and administrative philosophy, copies of undergraduate and graduate transcripts, and 4 letters of professional reference to: Dr. Marilyn M. Buck; Chair, Search Committee; Armstrong Atlantic State University; College of Health Professions; 11935 Abercorn Street; Savannah, GA 31419-1997. E-mail: buckmari@mail.armstrong.edu. Start date: 7/1/01. Deadline: 1/5/01 or until filled.

**Physical Therapy – Program Director:** Qualifications: Doctoral degree, previous teaching experience, eligibility for Pennsylvania licensure, expertise in research, acute care/cardiopulmonary, movement science, musculoskeletal disorders. Send cover letter with salary requirements, resume and CV, and names of 3 professional references to: Chatham College; Office of Academic Affairs; Woodland Road; Pittsburgh, PA 15232. Applications will be reviewed on a rolling basis for immediate placement.

### **OTHER POSITIONS**

Associate Research Engineer: Dept of Orthopaedic Surgery, The University of Iowa: Requires a Ph.D. in Biomedical or Mechanical Engineering (biomechanics emphasis) with 3 to 5 years of post-doctoral experience, a record of success in research and development projects involving orthopaedic implants or surgical constructs, a record of productive scholarship, and experience in the technical management of multi-faceted research and development projects. Related industrial experience, particularly in medical device R & D; experience with orthopaedic finite element models and working knowledge of the analysis software (PATRAN, ABAQUS, PV-

Wave) and computing platforms (NT, DEC/Compaq UNIX AlphaStations) in use in the University of Iowa Orthopaedic Biomechanics Laboratory; and experience with MTS servohydraulic testing equipment associated TESTWARE and TESTAR are desired. Interested candidates should contact: Lois Lembke, Dept of Orthopaedic Surgery, 1182 Medical Laboratories, The University of Iowa, Iowa City, Iowa 52242. The University of Iowa is an equal opportunity/affirmative action employer. Women and minorities are strongly encouraged to apply.

Graduate Research Fellowship – The University of Vermont, Burlington, Vermont: Vermont NASA EPSCoR is offering Masters and Ph.D. graduate research fellowships for Spring/Summer 2001. Students will have an opportunity to work at a NASA center on an exercise countermeasures and/ or skeletal adaptation related projects. The research fellowship is \$19,500/ year. Interested U.S. citizens and permanent residents should have a background in Mechanical Engineering or Biomedical Engineering and an interest in Space Biomedicine. Contact: Tony S. Keller, The University of Vermont, Mechanical Engineering, 201 Votey Building, Burlington, VT 54050156, Phone: 8026561936, Email: keller@emba.uvm.edu.

**Biomechanical Engineer – Forensic:** Provide technical support for litigation involving biomechanical/biomedical engineering work primarily on issues involving medical products, rehabilitation assistive devices, prosthetics, orthotics, implants, surgical devices; and injury causation related to physical abuse, products, vehicle crashes, slips and falls, medical procedures. Mature professional with excellent analytical and communication skills (writing, depositions, trials) for interesting and challenging assignments. Full-time position in Lancaster, PA or Morristown, NJ. For more information visit *www.RobsonLapina.com.* 

**Physical Therapist** to work in locally owned clinic in Puget Sound area of Seattle. Join team of therapists who specialize in sports, orthopedics, movement analysis, women's health, lymphedema, and biomechanics. Must have thorough knowledge of general orthopedics, preferably manual therapy skills with min. 3-5 yrs. experience in similar setting. Contact Information: Gladys Paige; Olympic Physical Therapy; 1605 116th Ave. N.E.; Bellevue WA 98004; TEL: (425) 455-2390; Fax: (425) 451-2390. E-mail: gpaige@olympicpt.com.

Human Factors Engineer (Ref Code: bp80371-712361) to work in Boston, MA. Qualifications: 2-5 years professional experience in applying Human Factors to products or systems. Ability to work independently; motivated; good writing, verbal communications/presentation, and organizational skills; ability to critique products and processes based on HF principles. Experience in biomechanics, human physiology, research psychology, statistical analysis, development of military equipment, backpacks, and personal protective equipment preferred. <u>Responsibilities</u>: Provide proactive design guidance; determine performance measures and generate test plans; conduct both labbased and field evaluations; perform data analysis. Contact information: Dawn Espin; MRI Charlotte-East; 2101 Sardis Rd. North Suite 205; Charlotte, NC. TEL: 704-849-9200; Fax: 704-849-9207. E-mail: DawnE@MakeGoodDecisions.com.

**Sales Territory Manager (Ref Code: bp82646-175A)** to work in growing diagnostic orthotics company in the Chicago metro area. <u>Qualifications</u>: Prior sales experience within the pharmaceutical/medical device industry; experience with orthotics preferred; record of excellent sales experience required; knowledge/experience in orthotics, kinesiology, biomechanics, athletic footwear preferred; excellent communication and interpersonal skills; must be entreprenuerial / self-directed individual. <u>Responsibilities</u>: Call upon clinics and offices of orthopedic surgeons, podiatrists, chiropractors, rehabilitation and physiotherapists; travel of 2-3 nights per week. Send resume as Word attachment to: lincolnshire@earthlink.net. Contact information: Ron DeChant; Management Recruiters Lincolnshire - Buffalo Grove; 1110 W. Lake Cook Road, Suite 167; Buffalo Grove.

Manufacturing Engineer (Ref Code: 101/1700243) to work in Cambridge, MA. Qualifications: BA in Human Factors program or related discipline. 0-2 years experience in Human Factors and/or a basic understanding of how human factors is applied to product design. Skill in Human Factors Engineering, Biomechanics, research, statistical analysis required. Responsibilities: Conduct literature searches/perform research; support efforts

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to determine performance measures and generate test plans; conduct labbased and field evaluations; perform data analysis. Contact information: waltham@techaid.com. TECH/AID Waltham; 295 Weston Street; Waltham MA 02454; TEL: 781-891-0800; Fax: 781-893-6577.

**Manufacturing Engineer (Ref Code: 101/1700245)** to work in Cambridge, MA. <u>Qualifications</u>: BS/MS in Human Factors. 7-10 years professional experience in applying Human Factors to products and systems (3-5 years managing programs). Experience in program planning and execution, meeting facilitation, proposal writing, biomechanics, human physiology, research psychology, statistical analysis, and personal protective equipment. Must possess good writing and organizational skills. <u>Responsibilities</u>: Provide proactive design guidance; determine performance measures and generate test plans; conduct both lab-based and field evaluations; perform data analysis; manage/track cost, schedule, and performance factors; manage subcontractors/case team; prepare proposals. Contact information: waltham@techaid.com. TECH/AID Waltham; 295 Weston Street; Waltham MA 02454; TEL: 781-891-0800; Fax: 781-893-6577.

**Process Development Assistant (Job Code: MB-PDA-1)** with TEI Biosciences Inc. in Boston, MA. <u>Qualifications</u>: BS in Biology, Chemistry, Biomechanics or related discipline; 0-2 years laboratory experience; teamwork; good communication skills; Citizen or permanent resident of the US. <u>Responsibilities</u>: Support Cardiovascular Research and Development Program; assist in fabrication and testing of biological scaffolds designed to repair damaged or diseased cardiovascular tissues. General laboratory work including solution preparation, scaffold production and scaffold testing. Send resume and cover letter (including job code and salary requirements) to: Human Resources; TEI Biosciences Inc.; 7 Elkins Street; Boston, MA 02127; E-mail: R@teibio.com. Fax: 617-268-3282; Website: www.teibio.com.

**NRSL Research Lab Assistant** to work at NIKE in Beaverton, OR. <u>Qualifications</u>: Master's degree in Biomechanics, including Human Factors Engineering or Ergonomics, or Bachelor's degree with 2 yrs experience in research. <u>Responsibilities</u>: Perform product-performance research aimed at increasing understanding of customer needs and activity requirements to develop technologically innovative footwear; interact with Product Analysts in all phases of research to provide holistic evaluation of products; participate in development of new tools, methods, and procedures; streamline data acquisition, process, and analysis to improve fit research efficiency; become the resident expert for Footwear- related research tools; support Corporate Communication by giving lab tours; make presentations at scientific meetings, clinics, conferences; publish in scientific journals. Apply online at www.nikebiz.com/applynow. Indicate job code INMBRD13123.

Senior Research Engineer with Johnson & Johnson in Warsaw, IN. Qualifications: MS degree in mechanical engineering or biomedical engineering; 3 years research of product development; above average oral and written communication skills and interpersonal skills; in depth knowledge of research testing equipment such as servo-hydraulic and electromechanical testing equipment, computer aided design, testing software, and analytical (FEA) software; strong ability to design experiments and develop data acquisition systems. Responsibilities: Manage research projects from initial feasibility testing through final product development, including design, prototyping, fixturing, testing, data acquisition, finite element analysis (FEA) and associated documentation. Evaluate research proposals. Assist in the management of co-op students, lab technicians, & test engineers. Develop concept ideas through design and coordinate fabrication of test fixtures, test samples, and occasionally test machines. Interface with surgeons, researchers, outside vendors and prototype facilities. Prepare reports and presentations for both internal and external publication. Write standard operating procedures and maintain a clean and safe working environment. Apply via web at http:/ /www.jnj.com/cgi-bin/GenerateForm.cgi/int\_submit. Contact information: Johnson & Johnson Recruiting Services; Employment Management Center; 501 George Street; New Brunswick, NJ 08906.

Human Factors Engineer with Lockheed Martin Coorporation in Houston, TX. Qualifications: B.A.or M.S. in appropriate field. 2-4 yrs experience (0-2 yrs if M.S.). <u>Responsibilities</u>: Conduct human engineering/ergonomic analyses and evaluations of space related human-systems. Provide human engineering inputs (i.e., in the areas of anthropometry, biomechanics, and systems engineering) to space hardware development teams and provide

assessments of compliance to human engineering requirements. Prepare written reports and presentations describing findings, issues, and recommendations based on human factors standards and guidelines. Send e-mail with resume and cover letter in the body of the e-mail [(or as attachments in one of the following standard formats: HTML, Microsoft Word (Mac or Windows), RTF, Works, Write or Excel, WordPerfect (Mac or Windows), Lotus Word Pro, AMI Pro or 1-2-3, ASCII or Unicode text (plain text)] Note: QuarkXpress and PageMaker files cannot be accepted. Compressed documents not recommended.

**NOTE:** Applicants are stongly encouraged to contact the listing individual/institution directly to determine the current statusof a position and to obtain additional information.

Additional opportunities can be found on the ISB home page (http://isb.ri.ccf.org/jobs/index.html), on the Biomechanics World Wide home page (http://www.per.ualberta.ca/ biomechanics) under the Career Opportunities category, and at http://www.biosolutions.net/cgi-bin/ubbcgi/Ultimate.cgi.



# **From the Past-President**

Melissa Gross

One of the most important duties of the Past-President is to chair the Awards Committee. The Awards Committee is pleased to call for nominations for the awards to be presented at the 2001 ASB annual meeting in San Diego.

All materials supporting nominations for the Borelli Award, the Young Scientist Awards, the Travel Award, and the Student Travel Awards should be submitted directly to me. Note that nominees for the Young Scientist Awards must also submit their scientific abstracts to the Program Committee Chairperson, Walter Herzog, along with a letter indicating the award being sought. Deadlines for these awards are given below.

This year there is a change in the process for selection of the Clinical Biomechanics, Journal of Biomechanics, and Microstrain Award winners. Beginning at the 2001 annual meeting, the nominees for these awards will no longer be self-selected, but instead will be selected by the Awards Committee from a pool of the top rated 20% of abstracts submitted to the annual meeting as evaluated by the Program Committee. The Awards Committee will then select two finalists for each of the three awards, and each of these six authors will present their work in a special awards session at the annual meeting. The winner of each award will be selected by the Awards Committee after this session.

Some of these awards have surprisingly short application lists. Members should seriously consider applying for any award that is appropriate for their membership status and research area. I urge you to consider applying for one of these awards yourself, or nominating someone who's work you admire.

### **Borelli Award**

The Borelli Award, the most prestigious honor given by the ASB, recognizes outstanding career accomplishment and is awarded annually to an investigator who has conducted exemplary research in any area of biomechanis. The award is open to all scientists, including non-ASB members, but excluding ASB officers and members of the Awards Committee. Candidates may be nominated by themselves or by others. Selection is based on originality, quality and depth of the research and its relevance to the field of biomechanics. A letter of nomination, a comprehensive curriculum vitae, and five publications on a single topic or theme must be submitted. The awardee is expected to attend the 2001 Annual Meeting of the ASB in San Diego in order to receive the award and to deliver the Borelli lecture. The award consists of an engraved plaque and a check for \$1500. The submission deadline is **April 1, 2001.** 

### Young Scientist Awards

These awards recognize early achievements by promising young scientists. They are awarded annually to one pre-doctoral student and one post-doctoral scientist. Nominees for these awards must be current or pending members of the ASB at the time of submission. Candidates may be self-nominated or nominated by an ASB member. For the pre-doctoral award, submitted materials must include a letter of support from the department head or graduate research advisor, a short description of the nominee's current research involvement, a curriculum vitae, copies of published papers and/or submitted manuscripts, and an abstract of original research submitted for presentation at the 2001 ASB annual meeting having the nominee as first or sole author. For the post-doctoral award, submitted materials must include a letter of nomination, the nominee's curriculum vitae, copies of published papers and/or submitted manuscripts, and an abstract of original research submitted for presentation at the 2001 ASB annual meeting having the nominee as first or sole author. These awards each consist of an engraved plaque, a check for \$500, and a waiver of conference fees for the 2001 annual meeting. The submission deadline is March 1, 2001.

### **ASB-Microstrain Award**

Microstrain, Inc., of Burlington, Vermont annually funds an award that recognizes superior achievement in the area of instrumentation. The award competition is open to undergraduate and graduate students who have made an innovative application of existing instrumentation or have developed new instrumentation for use in biomechanics. Award candidates must be the first or sole author on an abstract of original research submitted to the 2001 ASB annual meeting. Candidates will be selected from a pool of the top rated 20% of abstracts submitted to the annual meeting as evaluated by the Program Committee. The Awards Committee will select two finalists for the award, and each finalist will present their work in a special awards session at the annual meeting. The winner will be selected by the Awards Committee after this session. The award includes an engraved plaque and a check in the amount of \$1000. The submission deadline is March 1, 2001.

### Journal of Biomechanics Award

This award, sponsored by Elsevier Science, Ltd., publishers of the Journal of Biomechanics, recognizes substantive and conceptually novel mechanics approaches explaining how biological systems function. In addition to being ASB members, award candidates must be the first or sole author on an abstract of original research submitted to the 2001 ASB annual meeting. Candidates will be selected from a pool of the top rated 20% of abstracts submitted to the annual meeting as evaluated by the Program Committee. The Awards Committee will then select two finalists, and each finalist will present their work in a special awards session at the annual meeting. The winner will be selected by the Awards Committee after this session. The award includes an engraved plaque and a check in the amount of \$500. The submission deadline is **March 1, 2001.** 

### **Clinical Biomechanics Award**

This award recognizes outstanding new biomechanics research targeting a contemporary clinical problem, and is sponsored by Elsevier Science, Ltd., publishers of Clinical Biomechanics. In addition to being ASB members, award candidates must be the first or sole author on an abstract of original research with special relevance for clinical applications submitted to the 2001 ASB annual meeting. Candidates will be selected from a pool of the top rated 20% of abstracts submitted to the annual meeting as evaluated by the Program Committee. The Awards Committee will then select two finalists, and each finalist will present their work in a special awards session at the annual meeting. The winner will be selected by the Awards Committee after this session. The award includes an engraved plaque and a check in the amount of \$500. The submission deadline is **March 1, 2001**.

### **Travel Award**

A Travel Award of up to \$1000 is offered to foster collaborative research and interaction among scientists by helping to offset the cost of travel to a host institution. All regular ASB members (i.e., not student or corporate members) are eligible to apply. A cover letter describing the details of the planned project, a copy of the applicant's curriculum vitae, and an indication of the availability of any matching funds from the host's or candidate's institution (desirable but not required) should be submitted. The funding period is from July 1, 2001 through June 30, 2002. The recipient of the Travel Award is expected to present a poster of the funded project at the 2002 ASB annual meeting to be held in Calgary. The submission deadline is April 1, 2001.

### **Student Travel Awards**

These awards, generally around \$250, are available only to ASB student members and are intended to offset the cost of travel to the annual meeting. Application for these awards should only be made after receiving notification of an abstract's acceptance. A copy of the accepted abstract, acceptance letter, and a letter from the student's faculty advisor indicating a need for assistance should be submitted to the chair of the Awards Committee as soon as possible after receiving notification of the abstract's acceptance. The submission deadline is **May 1, 2001.** 

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