

American Society of Biomechanics Newsletter

Vol. 15 June 2002 No. 1

www.asb-biomech.org

From the President Andrew Biewener

ASB in association with WCB plans to provide a *Rocky Mountain High* for this year's joint meeting!

Greetings ASB members,

I am very much looking forward to our participation, jointly with the Canadian Society of Biomechanics, at this year's IV World Congress on Biomechanics international meeting. The World Congress will provide a first-rate venue for presentations of leading biomechanics research in a broad array of fields. As our 26th ASB Annual Meeting, the WCB-IV will incorporate many of the features of the ASB meeting that you and I find attractive, as well as offer a broad international audience with themes and keynote presentations that will augment the range of topics normally covered well at our smaller annual meetings. In addition to the range of symposia, podium and poster presentation sessions, the special awards ceremonies and lectures (Pre- and Postdoctoral Young Investigator, Borelli) will be scheduled as key features of the WCB, to highlight ASB's role in this meeting.

Jill McNitt-Gray has worked hard with Rodger Kram and Walter Herzog to ensure a solid representation of ASB interests at the World Congress. With over 60 symposia, there will be no shortage of topics to consider attending!

At our mid-year meeting in Dallas, the Executive Board selected the University of Toledo for the upcoming 27th Annual ASB Meeting site. Many thanks to Danny Pincivero and Vijay Goel for putting together a superb meeting bid. The site and facilities at Toledo look to be excellent for our meeting. Travel to Toledo will be facilitated by ground transport from either Detroit or Cleveland airports, in addition to Toledo airport.

In addition, the XB reviewed/discussed ASB's existing contract with Elsevier Science regarding membership subscription to the *Journal of Biomechanics*, as well as other Elsevier journals. We are in the process of negotiating with Elsevier for a new threeyear contract and have expressed the strong hope that future contracts will not require ASB members to pay for a *Journal of Biomechanics* subscription as part of their regular ASB membership dues. We hope to make the J. Biomechanics subscription entirely voluntary for many of you who have access to the journal in paper and on-line through your institution. In the background, Ted Gross took over for Rob Shapiro as ASB Secretary-Treasurer and has done a superb job making this transition. He's also begun to look into exploring ways to improve ASB's investment strategy, improving on its current financial situation. Despite the uncertain financial times of this past year, ASB continues to be fiscally strong.

ASB hopes to fund a number of grant-in-aid proposals and graduate student travel awards to attend the WCB this year, largely from funds that the ASB will receive from net proceeds to the WCB. This reflects our recognition of the much higher cost to attend the WCB compared with the normal cost of an ASB Annual Meeting. We sincerely hope that many of the ASB graduate student members have applied for travel support in order to be able to attend the WCB meeting in Calgary.

For anyone who has not been to Calgary and the surrounding Canadian Rockies, I strongly urge you to take some additional time to sight-see, white-water raft, hike or simply enjoy the beautiful mountain scenery. In addition to the high quality science you can expect to find at the main WCB meeting, these are all additional reasons for making sure to attend this year's meeting.

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(From the President continued)

James Ashton-Miller, our ASB Past-President, and his Awards Nominating Committee put together an excellent slate of candidates for the various ASB awards that honor our members and others in the biomechanics field. I am sure that you will find the candidates and award winners first-rate and excellent representatives of the quality and range of biomechanics research that our Society seeks to foster.

It has been a great honor and pleasure to serve the ASB this year. I have very much enjoyed the opportunity to work with such a talented and dedicated group as those who serve on the Executive Board. I look forward to seeing all of you in Calgary in August. Have a good end of the academic term and a great start to your summer! Best wishes.



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From the Secretary/Treasurer Ted Gross

It seems like I just wrote my first Secretary-Treasurer Newsletter note, and now my term in office has come to an end. Just practicing ;-). I wanted to use the space generously set aside for the Secretary-Treasurer column to update everyone on several fronts (Journal Subscriptions, Finances, Membership, and Electronic Communication). If you have any specific questions or comments, feel free to e-mail me (tgross@u.washington.edu).

Journal Subscriptions: As many of you have noticed, some 2002 Elsevier subscriptions have been exceedingly slow to arrive. To give you a feel for how dues and subscriptions are processed, we attempt to enter dues into the database on the week they are received. At the end of each month, a list of subscriptions are forwarded to the publishers, along with payment for all subscriptions in the list. This processing, of course, may result in a slight delay depending on whether we receive your dues/subscription at the beginning or end of the month. The more serious delays experienced by some (i.e., no journals arriving at all) are related to how Elsevier has maintained/managed the subscription lists. It is our hope that this issue has been resolved.

Finances: As of the mid-year Executive Board meeting in Dallas (Feb 9, 2002), ASB finances remained consistent compared to the past three years. Our total society funds were \$123,787 (a 10.6% increase vs 2001). Our society investment portfolio stood at \$88,235 virtually unchanged from its value at the San Diego annual meeting.

Membership: Currently, we have 580 paid members for 2002. This number includes 487 regular members, 90 student members and 3 corporate sponsors. Given the continued trickle of new memberships and renewals, I would anticipate that our final 2002 numbers will be slightly increased over 2001 (506 regular, 93 student). The Engineering and Applied Physics and Exercise and Sports Science disciplines continue to dominate the membership (nearly 70%), with the remainder fairly evenly distributed between Biological Sciences, Ergonomics and Human Factors and Health Sciences.

Electronic Communication: At our mid-year meeting, the ASB Executive Board decided to move forward with transitioning as much of society business to e-mail as possible. We will limit the e-mails to issues of some importance (e.g., annual meeting info, 2002 elections, 2003 dues) and will maintain privacy by sending all e-mails by blind copy. This strategy will, hopefully, improve communication as well as reduce mailing costs for the society. You should have already received at least one e-mail (if you are a paid member for 2002). If not, please e-mail me your current e-mail address. A surprising number of e-mail addresses are not current in our database (approximately 7% based on the number of bounce backs).

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. Based on level of financial support required and upon benefits provided, 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:

<u>CORPORATE MEMBERS</u> Aircast DePuy Orthofix, S.R.L. Peak Performance Technologies, Inc.

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.

••• 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!**

Education Committee Julianne Abendroth-Smith

How many of you have ever taken a pedagogy course in your graduate school career? That is, a course on how to be an effective teacher? My guess is not many, as most doctoral programs have no such requirement. However, many of our members in ASB teach courses at all levels of the collegiate experience. For those of us who teach at the undergraduate level, concerns abound in terms of large class sizes, lack of useful technology, and effective teaching resources. If you are interested in improving your teaching effectiveness, many fine examples can be found, although sometimes we might have to reach across disciplines.

As an example, I recently attended a small math and science conference on the use of technology in the classroom, with the theme being "preparing tomorrow's teachers to use technology". Our keynote speaker was David Sokoloff, a physics professor from the University of Oregon. I came away from his lecture and the small group discussion with two very important ideas (among many good points that were discussed) about the use of technology in teaching.

The first point I thought was important concerned the use of technology for technology sake. We are all familiar with powerpoint lectures, classic demonstrations in the front of the room, and for our discipline, the use of kinematic and kinetic equipment for project assignments in undergraduate and graduate courses. We use technology, we like technology (one compelling reason many of us ended up in this field- big toys are a good thing...), but what does technology add to learning? I see more and more presentations with students who can run the equipment, produce fine looking graphs, and generate a powerpoint presentation or poster. When questioned about the results, or the methods, or (gasp!) the theory behind what the information is about, our students still fall short. I believe we have a responsibility to use technology in terms of learning effectiveness. Our keynote speaker demonstrated this aptly, through the use of "interactive lecture demonstrations".

So my second point deals with this notion of "interactive lecture demonstrations". I love this phrase. It seems to have oxymoron written all over it, and I commented as such to one of my colleagues before Dr. Sokoloff started on his talk. Think about it. Interactive lecture. Interactive demonstration. I understand a lecture demonstration, but to add interactive to it just didn't sound as if it would work. However, Dr. Sokoloff passed out what he refers to as prediction sheets, and asked everyone to draw their own velocity and acceleration graphs for a sample accelerated motion that he demonstrated up front (it was great to have a physics example, although the chemists and biologists at the meeting were less thrilled). We then were asked to compare our own results to a neighbor and come to a consensus about the graphs (the chemists and biologists liked this part better). The

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(Education Committee Report continued)

group was then asked to share their ideas about the motion in terms of the graphs while Dr. Sokoloff marked the suggestions on an overhead for everyone to see.

The demonstration was ran again, this time with position data over time graphed with Venier Labpro hardware and LoggerPro software. Subsequent velocity and acceleration graphs were computer generated for everyone to see, and a discussion into why the data came out as it did proceeded. While we were not college students in attendance (we still all sat in the back few rows...), the discussion was lively and I believe, effective in explaining the concept behind acceleration. The session was interactive, technology added to the demonstration, and yet, the lecture format was still evident. In short, an interactive lecture demonstration actually worked, in spite of the obvious contradictions in terminology.

Some useful resources on teaching with technology, and on interactive lecture demonstrations include: We can all improve our teaching- and the nice part is that the resources are there, if we look.

Cradler, J., & E. Bridgforth. Recent research on the effects of technology on teaching and learning. [on-line] available at http://www.wested.org/techpolicy/research.html

Cradler, J. Summary of current research and evaluation findings on technology in education. [on-line] available at <u>http://</u> www.wested.org/techpolicy/refind.html

Sololoff, D.R., & R.K. Thornton. (1997). Using interactive lecture demonstrations to create an active learning environment. <u>The Physics Teacher 35</u>, pp. 340-347.

On a final note, my tenure as Education Chair is coming to a close. I will be turning over duties to Steve McCaw's capable hands for next three years. Steve has been an active member of ASB, having served on the education committee, and hosting the Midwest Symposium this past year that ASB helped to support. I am not going very far, though, having agreed to take over as Membership Chair. If any of you are interested in becoming involved with the executive board of ASB, a good way to start is to serve on one of the committees. I will be putting together a membership committee, and would love to see some new faces be a part of it. Email Steve McCaw or myself, and we will get you involved (smccaw@ilstu.edu or jabendro@willamette.edu).



Students' Corner Ugo Buzzi

Greetings fellow ASB student members. I hope all of you ended the academic year with great success, or at least with great relief. I am happy to report several promising things with regards to student business this year. First, following much inquiry from many of you, the Student Grant-In-Aid program was resurrected. Congratulations to all of you that applied on your effort and a further congratulations to all of you that were awarded funding. The application process itself is a rewarding experience providing a sense of what future funding ventures have in store for us once we move on from being students to professionals in our field. I encourage all that applied, and those that didn't, to look to the ASB Grant-In-Aid program as a possibility for funding in future years. I am also happy to report that the awards committee received a number of student travel grant requests this year. Interest in the travel grant far exceeded previous years' interest. It seems that students, now more than ever, are taking advantage of some of the benefits that student membership has to offer. Keep it up!

I also extend congratulations to all of you whose proposals were accepted for presentation at the IV World Congress of Biomechanics to be held in Calgary, Alberta, Canada from August 4th-9th. I look forward to hearing and/or seeing all of your presentations. For those of you who may still be on the bubble about attending, I strongly encourage you to make the trip to Calgary. It will be a great opportunity to meet biomechanists from around the world and to learn about the most current work in the field. For those of you looking to further your studies in biomechanics, the World Congress will be a great opportunity to network and possibly meet your future mentor. I am in the process of planning several events for ASB student members in Calgary. Among these will be the annual student luncheon, as well as student social events where the student members can interact in a more social setting and possibly meet students from other societies that will be represented at the World Congress. Lastly, the World Congress will mark the end of my tenure as student representative and so we will be electing a new representative for 2002-2003. If any of you are interested in holding this position, please let me know in advance and I will be happy to share some information with you concerning the position.

I appreciate your time and attention. I look forward to seeing all of you in Canada in August. Please feel free to contact me if you have any questions, concerns, or comments. Good luck with all your endeavors.

Sincerely,

Ugo Buzzi



... The Total Solution in Motion Capture

Program Committee Jill McNitt-Gray

The American Society of Biomechanics 2002 meeting will be held in conjunction with the World Congress in Calgary (Aug. 4-9, 2002, <u>http://www.kin.ucalgary.ca/wcb2002</u>). The breadth of topics represented provides a rich environment for the exchange of ideas between subdisciplines within biomechanics. Given the joint nature of the meeting, ASB will host the Borelli Award Lecture, the ASB Awards Session, and the ASB Symposium.

Our role as a program committee was different this year in that much of the World Congress program was prescribed by a standing committee. Therefore, we needed to identify a symposium topic that complemented the existing World Congress program yet met the needs of the ASB membership. Comparison of previous ASB conference proceedings and the World Congress program information available in the early planning stages revealed three areas that were of interest to the ASB membership that appeared to be under represented (neuromuscular control, ergonomics, upper extremity, mechanics/modeling). In response, we have organized a three-session symposium on the neuromuscular biomechanics and ergonomics of the upper extremity and hand. The structure of the ASB Symposia is designed to promote discussion and to bridge gaps between experimental and modeling based approaches, as well as, basic and applied research questions specific to hand and upper extremity function. In each of the three sessions, original papers will be presented and discussed. The authors of each paper within each session will then participate in a panel discussion led by the session moderator. The symposium will conclude with an overall summary and discussion of future directions led by session moderators. At the conclusion of the symposia, we hope that we all will leave with a better understanding of hand and upper extremity biomechanics, as well as, experimental and modeling based approaches that are likely to advance our understanding of the control and dynamics of upper extremity function. We will continue to work with Walter Herzog, the Meeting Chair, to coordinate the timing of ASB Symposia and ASB Award Sessions so that sessions of interest to ASB members are not concurrently scheduled. We look forward to a stimulating exchange of ideas from multiple perspectives!

Jill McNitt-Gray, ASB Program Chair/Symposium Co-Chair Francisco Valero-Cuevas, Symposium Co-Chair Rodger Kram, Program Chair-Elect Richard Hughes Mary Rodgers

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Membership Committee Scott L. Delp

The Membership Committee reviewed 105 applications for membership over the last twelve months. This is up from 98 applications last year and 91 the year before. We did not reject any applications for student membership, but rejected approximately 10% of the applications for regular membership. Applications for regular membership are typically rejected if the applicant has not recently published a refereed journal article in the field of biomechanics.

The distribution of applications by membership category and discipline was similar to the previous years. A majority of our applications came from Engineering/Applied Physics (48%). Exercise/Sports Sciences (23%), Health Sciences (15%), Ergonomics/Human Factors (6%), and Biological Sciences (8%) comprised the rest of the disciplines. Approximately half of our applications for membership come from students.

It has been an honor for me to serve the Society as Membership Committee Chair for the last three years. Clair Farley, Irene McClay, Greg Rash, and Mark Redfern have served with me on the Membership Committee, and I would like to thank them for the important, behind-the-scenes, contributions they have made to the society. Julianne Abendroth-Smith will take over as the new Chair of the Membership Committee this summer. Julianne will be assisted by Dan Ferris, Kevin Granada, and Darryl Thelen as new members of the Committee.

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	\$100
1/2 page	\$200
full page	\$400
back page	\$600
separate insert	\$600 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).

ASB Graduate Student Grant-In-Aid Program 2002:

*** Update ***

The 2002 Graduate Student Grant-in-Aid Program of the ASB is well underway. The purpose of this program is to aid and encourage student members 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. The Executive Board anticipates making 3-4 awards for the funding period that will begin September 1, 2002. Award amounts are expected to range from \$500 to \$2500 for a one-year period. There has been great interest in the program with over 40 inquiries to-date from students from around the country. The proposals are due by May 1, with funding beginning in September. Announcements of the awardees will be made at the ASB meeting this summer.

Mark S. Redfern, Ph.D.

Chair, ASB Research Review Committee

— ASB and Elsevier — A Strong and Vibrant Partnership

ASB has had a long-standing relationship with Elsevier publishers, with the Journal of Biomechanics being designated as our official journal. In return for this designation, ASB receives an annual page allotment in J. Biomechanics. In the past we have used our pages for educational purposes, such as the publishing of keynote papers and tutorials. Elsevier also generously supports our Society by their multi-year commitment to fund the J. Biomechanics Award, given at our Annual Meeting. Finally, Elsevier has continued to provide our membership with discounted rates to the Journal of Biomechanics as well as other journal titles published by Elsevier.

More recently, however, with the evolution of publishing making electronic access to journals more widely available, the needs of our membership have been changing. The Executive Board is in the process of negotiating a new subscription rate for our members, and both issues are being favorably discussed (with the goal being the proverbial win-win situation!). Please forward any comments or suggestions regarding the J. Biomechanics to Joan Bechtold, or Rick Lieber, the ASB Representatives on the Editorial Board of the Journal.

And the next time you see an Elsevier representative, perhaps in the booth at the World Congress, take a moment to say hello, and to thank them for their continued support of the ASB.

Journal of Biomechanics



Editors-in-Chief R. Huiskes and R. A. Brand ISSN: 0021 9290

The **Journal of Biomechanics** is the leading forum for the publication of articles describing the principles of mechanics to explore biological problems. Papers published in the journal cover a wide range of topics in biomechanics including, but not limited to:

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If you would like to discuss informally a submission to the journal, or have an idea for a focussed journal issue, please feel free to talk to one of the journal Editors-in-Chief: Professor R. Huiskes (E-mail: <u>Biomechanics.BMT@tue.nl</u>) or Professor R. Brand (E-mail: <u>dick-brand@uiowa.edu</u>).

WCB 2002 Report Walter Herzog

Update on the IV World Congress of Biomechanics and 26th ASB Conference

As you are all aware, the ASB Conference will be held in conjunction with the World Congress of Biomechanics in Calgary, Canada, August 4-9, 2002. This is insofar exciting as students that normally would attend the ASB meeting will now be exposed to a greater variety of research topics and a much bigger audience than they normally would. However, combining the ASB and World Conference also has the drawback that very special aspects of the ASB conference may get lost in the "big" meeting. We have made every attempt to preserve some identity for the ASB conference and to highlight and emphasize specific events. These include the Borelli Lecture, the Student Award's Session, the Award's Session for the Journal of Biomechanics, Clinical Biomechanics and Microstrain Awards, and three ASB sponsored Symposia entitled: Hand and Upper Extremity I -Biomechanics and Dynamics, Hand and Upper Extremity II -Neuromuscular Biomechanics of the Hand and Upper Extremity, Hand and Upper Extremity III - Ergonomics.

In the meantime, we have received all abstract submissions, and every abstract was reviewed by a minimum of two referees. Based on this review process, approximately 5% of the abstracts were rejected. By now, all corresponding authors have been informed about the status of their abstract. In the next two weeks, we will finalize the program, so that we can inform participants about the time and date of their presentation by May 15, which, hopefully, will leave ample time to make travel arrangements.

We received a total of 1,140 abstracts for free communication, and have received another 450 abstracts for the Invited Symposia. The program includes virtually all topics in biomechanics research, and comprises scientists from every part of the world.

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 email, 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 December 2002. **Deadline for submission of materials is 19 October 2002!** Some of the highlights of the program include the Plenary Lectures and the Opening Lecture. On Sunday August 4, the Opening Lecture will be presented by Nobel Laureate, Steven Chu from Stanford University. One Plenary Lecture will be presented each day of the conference. They are (in no particular order):

Charles Ellington, General

The Novel Aerodynamics of Insect Flight: Applications to Micro Air Vehicles

Don Giddens, Cardiovascular

Hemodynamics and Atherosclerosis:^o How Much Do We Really Know?

James Spudich, Muscle

Single Molecule Analysis and the Myosin Family of Molecular Motors

Jean-Jacques Meister, Cellular/Molecular

Cell Structure and Function: Plenty of Room for Biomechanics

Kozaburo Hayashi, Orthopaedics

 $Functional\,A daptation\,and\,Remodeling\,of\,Biological\,Soft\,Tissues$

We, the Organizing Committee, are happy to welcome you to Calgary. We hope that the conference will be memorable for its scientific quality and for the social and informal interactions that we encourage. Specifically, we would like to bring together the Plenary Lecturers with the student attendees in a "lunch-type" setting, where questions and discussions can evolve that are not constrained by the limitations of schedules and the somewhat "intimidating" atmosphere of the formal question periods following presentations.

The American content of the program is strong. 428 corresponding authors are from the U.S., and 172 of the corresponding authors on abstracts indicated that they were ASB members. We are very pleased to see this response from our southern neighbors, because we wanted to make sure that the ASB and its constituents are well represented.

I would like to encourage you all to attend this year's ASB conference in conjunction with the World Congress of Biomechanics. Your participation and presentations at the conference will make the meeting successful. And, after all, the Canadian Rocky Mountains with Banff National Park are just an hour's drive from Calgary, and they make for beautiful vacation and sightseeing. Welcome to Calgary

For further information on the ASB/WCB conference, please visit our official website: www.wcb2002.com, or contact the Conference Secretary, Karla Denby by email at info@wcb2002.com or direct telephone: 403-220-7552.

Walter Herzog Scientific Chair, IV World Congress of Biomechanics ASB 2002 to be held in conjunction with the IV World Congress of Biomechanics



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Calgary August 4 - 9, 2002



www.wcb2002.com



Okay, time to pen my biannual editorial for the ASB Newsletter! My previous columns have all seemed (in hindsight) a bit too technologically preachy – sharing my computer / software prowess with the rest of the ASB community. As if (a) I had any special knowledge to share and (b) there were any out there who could benefit from the sharing. This time 'round I would like to steer clear of such perilous matters, and with your indulgence, speak casually of several matters.

Spring / Summer has been slow in coming this year in Minnesota. Even today (May 20th) although the sky is clear and the sun is brightly shining, a high of only 58° (hmm, in Celsius...? time to start thinking Calgary...) is predicted. That is a wee bit chilly for me to consider this late or even mid-Spring. But lest I have difficulty in identifying the time of year owing to weather, my four year old daughter's first dance recital took place this past week (success! she didn't freeze, and she didn't wet herself!), and I was at a high school Pop Music production last night, both indicators that the end of the school year is fast-approaching. A quick aside regarding the artistic productions. I had no idea how over-the-top dance costumes can be, baring midriffs and sporting bright besequined and befeathered pieces. Wow! And the variety of the human form revealed... My goodness.

With Spring/Summer arguably upon us, my thoughts turn to the outdoors, and a summer ahead of us for their enjoyment. And, of course, there is Calgary to look forward to in August! I thought I might spend a few moments outlining some extracurricular options available for you all associated with the upcoming World Congress of Biomechanics meeting in Calgary, and to encourage you to consider taking the time to squeeze them into your schedule. DISCLAIMER: I am not in any way proposing that you sacrifice any of the week-long meeting to indulge in these extra endeavors. There, I think I have adequately protected myself from accusations of detracting from the meeting.

First, let me state my admittedly limited credentials for serving as your novice travel consultant. I first visited Calgary on the way to a Combined Meeting of the Orthopaedic Research Societies of the U.S., Canada, and Japan which was held at the Banff Springs Hotel. Banff is a National Park east of Calgary in the midst of the Canadian Rockies. At the heart of the park is the actual Banff townsite, where the Banff Springs Hotel is located. While at the meeting in Banff that year, I hitched a ride to Lake Louise (further east) with a colleague who had a rental car. None of the four of us along that day were equipped to hike, but the trails originating at Lake Louise were so inviting.... We hiked through fresh-fallen snow up the mountain that day, and I'll never forget the beauty of that hike, the view of the glacial lake, or the pleasure of the break from the intense meeting.

Five years later, I had the pleasure of spending seven weeks in Calgary during 1996 under the auspices of a "mini-sabbatical" at the University of Calgary. Each weekend during my time there I would hop in the car and head for the scenic mountains. The Canadian Rockies are a truly beautiful venue for hiking, biking, and general carrying on. I returned to Calgary again for an ISB satellite meeting of the International Shoulder Group in 1999. In advance of the meeting, I rushed over to Banff for a quick day-trip of hiking and socializing with a few friends. Do yourself a favor, and find a way to get west to the mountains, a short one and a half hour drive.

One particular place I would specifically recommend is the Banff townsite, itself. Nestled in the heart of the National Park, it has a number of interesting local sites to see, and very affordable lodging (including a hostel). The town has an alpine feeling to it, much like what I imagine ski villages in the Alps might feel. While there, consider visiting the Banff Springs Hotel, allowing time to hike around on the edge of town, and finishing your day with a dip in the Banff Upper Hot Springs. The great thing is that the hiking trails range from the technically simple to the more serious and lengthy backcountry trails. There truly is something for everyone here.

Within Calgary, there are a multitude of recreational options available. An important point to remember about Calgary is that





respond with what you do at work. The appropriate response is to tell the questioner what you do at play.

One particular place I have enjoyed visiting within the city of Calgary is the Eau Claire Market, a large city-style market along the Bow River, at the northern end of the City Center area. It is located next to the entrance to Prince's Island Park, a beautiful little park which sits on an island in the river. Hanging out in the park for a couple of hours would be a great getaway, and there are often outdoor shows in the evenings there throughout the summer. The 240,000 sq ft market has one-of-a-kind stores, restaurants and theaters, including Cineplex Odeon Theatre, IMAX Theatre and Cinescape, an interactive entertainment centre, and arcade. The food market features fresh produce, seafood, meats, deli and bakery goods, wine, flowers, and exotic imports. A mix of locally owned specialty stores offer gift items, fashion, household decor, and art. Hours are Mon-Wed and Sat 10 am - 6 pm, Thur and Fri to 8 pm, Sun noon - 5 pm.

While in Calgary, it is also a fun trip to visit some of the Olympic Venues from the 1988 Winter Olympic Games which were hosted here. The speed skating oval is on the campus of the University of Calgary, a site we are all likely to visit during preconference tours or sometime during the conference. An inexpensive train ride will get you from downtown Calgary to the University campus. Elsewhere in town, you may choose to visit the site of the ski jumping competition. Many of the other

skiing events, both Nordic and Alpine, were held to the West, in the mountains of Kananaskis Country and Banff.

Well, that's about all I have to say this time around. Let me just add that the World Congress website (www.wcb2002.com) has loads of useful links for leading you about Calgary and the greater province of Alberta. I thought the interactive maps located under the "About Calgary" menu selection were especially useful jumping off points. Hope to see you enjoying yourself in Calgary!



Book Review

Rodger Kram

Prime Mover: A Natural History of Muscle

by Steven Vogel published by W.W. Norton & Co.

The thesis of this delightful new book is that muscle biomechanics and physiology have had very important influences on human history and culture. Vogel demonstrates how various successful efforts to couple muscle power and physical tasks have been turning points in human civilization. He provides an exhausting but entertaining string of examples to support this idea. The later chapter topics encompass how human and animal power influenced the development of tools, transportation, weapons and agriculture.

But, before getting to these historical and cultural influences, the book begins with six chapters that are mostly a review for anyone who has taken a physiology course. Fortunately, these chapters are laced with a few fun facts and anecdotes. For example, the reader is introduced to the great muscle physiologist Szent-Gyorgi in a Budapest restaurant as he selects filet mignon, (a.k.a. Psoas major) for both his dinner and experimental preparation. I learned that some muscle fibers contract as quickly as 70 MPH; I just never calculated it in those impressive units before. Similarly, I learned that the Greek "mys" and hence "myo-" derive from the word for mouse. According to Vogel, someone imagined the bulge of a muscle under the skin to act like a "subcutaneous mouse". More substantially, the first six chapters cover the topics of the sliding filament theory, excitationcontraction coupling, force-length and force-velocity curves, ATP/metabolism, reflexes and connective tissue. There are some interesting comparative zoological examples interspersed here too. However, my advice to most readers of this newsletter is - until chapter 7 just turn the pages while keeping an eye out for anecdotes.

The "meat" of the book begins with the biomechanics of tools and hardware. These items are the means by which civilization was built. Under Vogel's inquisitive eye, the reader begins to recognize how our tools reflect our anatomy, biomechanics and muscle physiology. My favorite examples involve how the axes and saws used to fell trees and make lumber have evolved and been optimized to match human muscle power production. I have often pondered the ergonomics of this sort of work myself as I split firewood with a maul. Vogel has done painstaking library research, finding obscure but perfect references like a 1949 master's thesis on the selection of ax weight by woodsmen. Overall one of my favorite things is that the text stimulated me to also read the footnotes and references. That has led me to some dusty old tomes in my university library and it has also germinated a few ideas for future research projects. Numerous other tool examples will make you stop and ponder as you tackle your next home repair project. For example, is there a biomechanical reason why screws tighten clockwise?

Muscle powered transportation follows the tool chapter. Perhaps the most novel section here involves the various rowing schemes of the last three millennia ranging from Egyptian, Greek and Roman warships to Ivy-league crew teams. To understand rowing one must consider the physiology of muscle, the mechanical advantage of oars, the material properties of wooden oars, the fluid mechanics of the oar in the water and the scaling of mass and power. Truly a daunting integrative challenge. Vogel describes how the winners in such real-life optimization problems won wars, invaded new territory and changed the course of European, Asian and North American history. My mentor Tom McMahon (an oarsman himself) would have smiled as he read this chapter.

Next Vogel turns his attention to human load carrying, both everyday objects and historically outstanding examples, such as Stonehenge. Optimizing the transport of grains and other produce, human powered trade routes and centralizing raw materials were likely crucial in the development of civilization. But, the hyperbolic feats such as moving 50 ton stones 50 miles to Stonehenge are more exciting and puzzling. Vogel doesn't solve these mysteries but he does calculate away some ideas floated by historians. Vogel covered some of my own load carrying research in a few paragraphs here and got it 99.5% right. That led me to trust his accuracy on other topics.

Leading out of human load carriage is a chapter on draft animal power, focused on the pros and cons of oxen vs. horses. That may seem a bit arcane to us now but our silicon/information/ petroleum based economy was built on top of an iron/oat/ATP economy. Vogel details the ingenuity of designs that optimized oxen horsepower and they remind me very much of the automotive age. My favorite anecdote here is that some working oxen wear two cloven shoes on each limb!

The book ends with two topics near and dear to all red blooded American males: weapons and red meat. Vogel's weapon discussion considers the momentum and kinetic energy issues involved in primitive hunting with stones and clubs. Next and more sophisticated is the development of weapons that store and amplify our muscle power (e.g. crossbows and catapults). Following the treatment of hunting weapons is a nutritional and gastronomical analysis of muscle as meat. Here Vogel steers an anthropologically informed middle course between vegan advocates and the American Beef Council.

Obviously I am rather positive about this book and its flaws are few. Allow me to make a literary comparison to Jared Diamond's recent best seller "Guns, Germs and Steel". Both books are by respected scientists in their own field. They both attempt to stretch beyond their own



scientific turf into world history and anthropology. However, Vogel's book pulls the reader along with new and clever ideas in each paragraph and chapter. After reading the thesis of Guns, Germs and Steel in the preface, I found the rest of the book to be a tiresome, overly detailed support for that one idea. My criticisms of Prime Mover are relatively minor. At times, Vogel's quirky word plays and puns get old. The author occasionally gets distracted with excitement and the ensuing digressions could have been cut. The chapter by chapter footnote numbering system that then leads to the references is a bit awkward, but complete. Some references to www links are cool but are not archival and no doubt will soon be dead links.

Overall, this is a great book to read in a hammock and ponder the greater meaning of biomechanics. Think of it as what would come out of a collaboration between R. McNeill Alexander and Stephen Ambrose. This is not another textbook full of equations and I doubt it will be used in many classroom settings. Though it might serve as a focus for a joint seminar with colleagues in anthropology or history departments. Lighten up and enjoy.

The hardcover list price is \$25.95 but an on-line bookstore named after a South American river sells it for only \$18.

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. 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

Graduate Students' Symposia

- Report from the Midwest -

The Midwest Graduate Students' Biomechanics Symposium (MWGSBS) was held at Illinois State University on March 22-23,2002. The annual symposium has been around since the early 1980s, and this was the fourth held at Illinois State since 1991. The generous support of the ASB allowed us to hold the Symposium over two days and to include keynote speakers, while maintaining the focus on student presentations.

The opening keynote on Friday night was provided by Dr. Mark Grabiner of the School of Kinesiology, University of Illinois at Chicago. With around 50 attendees, Dr. Grabiner spoke on the topic of "... and one thing led to another..." The talk covered the evolution of Dr. Grabiner's research from initial studies in the 1980s focused on the biomechanics of falls and related injury to a current multidisciplinary approach to fracture prevention and healing that ranges from the molecule to the organism.

For the Saturday sessions, presenting students came from Illinois, Kansas, Indiana, Michigan and Wisconsin. As usual, the 35 attendees were exposed to a wide variety of topics including equipment design and testing, sport biomechanics, orthopedic biomechanics, gait analysis and rehabilitation biomechanics. The strength of the MWGSBS is that it provides an opportunity for interaction among students and faculty who might not typically get together because of their working in diverse areas. Students presenters are to be commended for the quality of the presentations and their ability to respond to questions.

Two keynotes were intermingled with the student presentations on Saturday. Dr. Irene McClay of the Department of Physical Therapy, University of Delaware delivered the morning keynote titled "Clinical biomechanics in sports medicine: application to running injuries", focusing on how biomechanics is used to assess and treat running injuries. Dr. McClay presented several studies demonstrating how differing body structure and running styles were related to specific injuries. The afternoon keynote, presented by Dr. Géza Kogler of the Orthopaedic Bioengineering Research Laboratory, Southern Illinois University School of Medicine in Springfield was titled "Applied Biomechanics of the Foot: Discovering Solutions for Clinical Problems." His presentation described how combining a base knowledge of biomechanics with clinical experience provides a better treatment to various foot problems.

The 2003 MWGSBS is tentatively scheduled to be hosted by Dr. Kogler at the Southern Illinois University School of Medicine in Springfield. Information will be distributed over biomch-l. Students from all Midwest states should consider presenting and participating next year, in this oldest of all student biomechanics symposiums. Thanks again to ASB for its generous support!

Submitted by Steve McCaw, Ph.D, Illinois State University.

NOMINATIONS FOR OFFICE IN THE ASB

Below and on the following page, you will find biographical sketches provided by the candidates nominated to run for the offices of President-elect and Program Chair-elect. The nominating committee chaired by James Ashton-Miller has provided an outstanding set of candidates. The nominees are:

President-elect - Walter Herzog and Clint Rubin

Program Chair-elect - Mark Latash and Steve Robinovitch

Please consider these sketches carefully as you vote using the ballot included in this mailing. It is very important that the membership of our society take an active role in determining who will fill these positions. In early June, you should receive a ballot by e-mail. Please remember to <u>VOTE and RETURN</u> your ballot. We will announce the results at the annual meeting in Calgary. If you do not receive a ballot, please contact Ted Gross (contact information on page 4).

----- PRESIDENT-ELECT CANDIDATES -----

Walter Herzog, Ph.D.

Walter Herzog is Professor of Biomechanics with Joint Appointments in Kinesiology, Engineering and Medicine at the University of Calgary. He serves as the Associate Dean for Research in Kinesiology and holds a Canadian Research Chair in Cellular and Molecular Biomechanics. He received his Bachelor's degree from the Federal Technical Institute in Zurich, Switzerland, his Master's/PhD degree from the University of Iowa, USA, and pursued postdoctoral training at the University of Calgary, Canada. In 1987, he accepted his current position.

Dr. Herzog's research interests are in the area of musculoskeletal mechanics and control, with an emphasis on the mechanisms of muscle contraction and in vivo muscle function, and the in vivo joint mechanics and soft tissue adaptation. He has published over 170 scientific papers, four textbooks on biomechanics, and over 20 book chapters. He has been a member on study sections for the two major Canadian Granting Councils (NSERC and CIHR), and currently serves on the editorial boards of seven scientific journals

Dr. Herzog has been a member of the ASB since his student days. He served as the program chair for the ASB 2001 conference in San Diego, and is currently preparing the joint conference of the ASB and the World Council of Biomechanics in August of 2002. He is the past president of the Canadian Society for Biomechanics and served on the CSB Executive from 1990-1998.

His interest in running for President of the Society reflects his belief that National Organizations play an important role in the fostering and support of science and the education of student scientists. He also believes that the field of biomechanics is undergoing important changes that are reflected in novel multidisciplinary approaches to research problems, and the quick expansion of biomechanics into the cellular and molecular realm. If elected, he will continue to support existing areas of strength within the Society, and work to extend ASB's engagement into the areas of molecular and cellular biomechanics and biology.

Clinton T. Rubin, Ph.D.

Clinton Rubin is Professor and Chair of the Department of Biomedical Engineering at the State University of New York at Stony Brook. He also serves as Director of the New York State Center for Advanced Technology in Medical Biotechnology. He received his bachelor's degree from Harvard University, and his Ph.D. degree from Bristol University. Dr. Rubin's research interests focus on the molecular, cellular and tissue level mechanisms involved in the physical (e.g., mechanical, electrical) control of bone adaptation, and how these mechanisms can be utilized in the diagnosis, prevention and treatment of skeletal disease and injury. He has published over 100 research articles, 40 book chapters and 10 US patents, and has been very fortunate to have received several awards for his work, including ASB's Giovanni Borelli Award, NSF's PYI Award, the Kappa Delta Award from the ORS/AAOS, and the Fuller Albright Award from ASBMR.

Dr. Rubin has been a member of the American Society of Biomechanics since 1983, and has served on both the ASB Membership and Program Committees. He is fully committed to biomechanics and mechanobiology as critical to understanding development, morphology and the etiology of disease, and if elected, will work to encourage the interdisciplinary activities of the society, from the molecular to the organismic level.



- PROGRAM CHAIR-ELECT CANDIDATES

Mark Latash, Ph.D.

Mark Latash is Professor of Kinesiology at the Pennsylvania State University. He received equivalents of B.S. and M.S. degrees from Moscow Physico-Technical Institute in Physics and Physics of Living Systems (1976), and a Ph.D. from Rush University in Physiology (1989). He has been working at Penn State for the last seven years in his Motor Control aboratory and in close collaboration with the Biomechanics Laboratory.

Dr. Latash's research^o interests are focused on the control and coordination of human voluntary movements in young, healthy persons as well as in elderly and in special populations such as persons with spinal cord injury, multiple sclerosis, Parkinson's disease, stroke, and Down syndrome. Mark strongly believes in the importance of biomechanics for understanding the function of the central nervous system. He has been actively using biomechanical methods to test hypotheses in the field of motor control including the equilibrium-point hypothesis and, more recently, hypotheses on the organization of motor synergies. His studies have addressed the control of vertical posture, the coordination of joints during arm movements, and the coordination of fingers. These projects have been mostly supported by grants from the National Institutes of Health (NIH).

Mark Latash in currently the Editor of "Motor Control". He is also on the Editorial Board of "Human Movement Science". He Chaired the Organizing Committees of two conferences "Motor Control in Down Syndrome" (1989 and 1994) and two conferences "Progress in Motor Control" (in 1996 and 1999). For the last several years, he has been a member and the Chairperson of one of the NIH review panels. Mark has been a member of the American Society of Biomechanics since 1990. He has recently been elected President of the International Society of Motor Control.

Stephen N. Robinovitch, Ph.D.

Stephen N. Robinovitch is an Assistant Professor in the School of Kinesiology at Simon Fraser University. He is also a Faculty Associate in Engineering Science at SFU. He received his B. App. Sc. (1988) in Mechanical Engineering from the University of British Columbia, his M.Sc. (1990) in Mechanical Engineering from MIT, and his Ph.D. (1995) in Medical Engineering from the Harvard-MIT Division of Health, Science, and Technology (HST). Between 1995-2000, he was a faculty member in the Department of Orthopedic Surgery at University of California, San Francisco, and Director of the Biomechanics Laboratory at San Francisco General Hospital. In his present position at SFU, Dr. Robinovitch teaches undergraduate and graduate-level biomechanics courses, and is director of the Injury Prevention and Mobility Laboratory. His research seeks to improve our understanding of the cause and prevention of falls and mobility disorders, especially in the elderly. He uses experimental and mathematical models to identify the biomechanical factors that separate injurious and non-injurious falls, and to develop engineering-based strategies to prevent fall-related fractures (such as hip padding devices and energy-absorbing floors). He also explores the biomechanical determinants of postural stability and balance recovery, and the contribution of neuromuscular versus behavioral variables to task performance and risk for falls in the elderly. He has published 19 peer-reviewed journal articles, and has served as Principal investigator on grants from the NIH, CDC, and Whitaker Foundation. In 2001, he was awarded a Scholar Award from the Canadian Institutes for Health Research. He has also served as a grant reviewer for the NIH, Office of Naval Research, NSERC, and CIHR, and has reviewed manuscripts for various journals, including the Journal of Biomechanics, Journal of Biomechanical Engineering, Journal of Bone and Mineral Research, Journals of Gerontology, and Journal of Motor Behavior. He has been a member and active participant of ASB since 1994.

Don't Forget to Vote!

Job Opportunities

Kathy Browder

Faculty Positions

Kinesiology/Biomechanics – Assistant Professor – Qualifications: PhD or equivalent; post-doctoral experience is desirable. Biomechanist with a research interest in human locomotion, from the muscle fibre level to whole body level.Successful candidate must compete successfully for salary support and an establishment grant from an external agency. <u>Responsibilities</u>: 75% of time protected for research. The successful candidate will also contribute to teaching in the undergraduate and graduate programs of the Faculty of Kinesiology. Please submit a CV, three letters of reference, and a statement of research interests to: Dr. Walter Herzog, Co-Director, Human Performance Laboratory, Faculty of Kinesiology, Kinesiology Complex B, 2500 University Drive NW, Calgary, AB, Canada T2N 1N4. Deadline: 5/31/02.

Exercise Science/Biomechanics - Assistant/Associate Professor -Qualifications: Earned doctorate in exercise science with emphasis in biomechanics. Successful experience teaching in higher education and supervision of thesis/dissertation projects. Capacity to incorporate technology in teaching. Evidence of scholarly research and publication as well as expertise in grant writing. Work experience in applied settings preferred. Experience supervising graduate students in applied settings desirable. Responsibilities: Instruction of professional preparation and theory courses in biomechanics and exercise science. Supervise students in applied setting such as corporate fitness, commercial fitness and cardiac rehabilitation. Pursue research, publications and grants related to exercise science and related fields. Advise graduate students. Participate in department governance. Serve on committees. Send letter of application, CV, statement of research plan, academic transcripts, placement file (if available), reprints of publications, and 3 letters of recommendation to Dr. Debra Berkey, Chair; Department of Health, Physical Education, and Recreation; 1903 West Michigan Avenue; Western Michigan University; Kalamazoo, Michigan 49008-5100; Fax: 616-387-2704; Tel: 616-387-2705; E-mail: debra.berkey@wmich.edu. Website: http:// www.wmich.edu/coe/department.html. Start date: 8/5/02. Deadline: Immediate.

Motor Behavior/Biomechanics – Assistant Professor – Qualifications: Ph.D. in biomechanics, bioengineering, motor learning, control or development with strong interest in measurement of human performance as it relates to physical activity. Demonstrated ability to use the internet for instructional purposes desirable. <u>Responsibilities</u>: Teach graduate and undergraduate courses in motor behavior/ biomechanics. Develop funded research program that incorporates successful student experiences. Send letter of application, CV, university transcripts and 3 letters of reference to Chair, Faculty Search Committee; Department of Health and Human Performance; 104 Garrison Gymnasium; University Of Houston; Houston, TX 77204-6015; Tel: 713-743-9868; E-mail: ☐ HYPERLINK "mailto:clayne2@uh.edu" □clayne2@uh.edu (Dr. Charles Layne). Website: <u>http://</u> www.wmich.edu/coe/department.html. Start date: 8/02. Deadline: Immediate.

Exercise Science – Assistant Professor – Qualifications: Earned doctorate (ABD as Instructor considered). Teaching experience and scholarly achievement preferred. Certification in one or more of the professional organizations of exercise science and strength and conditioning. Clinical experiences in wellness, cardiac rehabilitation,

exercise testing, and strength and conditioning desired. Significant computer technology skills necessary. <u>Responsibilities</u>: Teach in various areas of Exercise Science including Exercise Physiology, Exercise Prescription and Testing, Cardiovascular Fitness, and Strength and Conditioning.Participate in student advisement, internship and graduate research supervision. Manage human performance laboratory. Contribute to research, program development and committee service. Send letters of application, CV, official transcripts, and 3 letters of recommendation to Dr. Robert Heitman, Ed.D.; Chair, Search Committee; Department of HPELS; University of South Alabama; Mobile, Alabama 36688-0002. Deadline: 5/15/02.

Physical Education/Fitness Center – Qualifications: Master's in physical education or education with an emphasis in physical education, kinesiology, physiology of exercise, or adaptive physical education, OR bachelor's in any of the above and Master's in any life science, dance, physiology, health education, recreation administration, or physical therapy or equivalent. Teaching experience at the community college level desired. <u>Responsibilities</u>: Teach a wide range of classes within the discipline. Send resume, letter of interest, unofficial transcripts, and 3 letters of reference to Joyce Moore; Dean of Academic Affairs; Los Angeles City College; 855 North Vermont Avenue; Los Angeles, California 90029. Start date: 8/02. Deadline: 5/20/02.

Health, Physical Education, & Sport Science - Department Chair - Qualifications: Earned doctorate in health, physical education, and sport science or a related field. Meet qualifications for appointment as Associate or Full Professor. A strategic visionary with empowering, democratic team building, and interpersonal skills. Diverse professional experience supporting the administrative role, including taking leadership in strategic planning, managing budgets, seeking external funding, building community collaborations, and promoting faculty scholarship. Experience with accreditation of academic programs highly desirable. Responsibilities: Serve as an instructional leader who maintains a record of teaching effectiveness and applied scholarly achievement. Send letter of application addressing the applicant's position qualifications, teaching philosophy, administrative philosophy, and scholarship activity; CV; names, addresses, and telephone numbers of 5 references; and official graduate transcripts to Dr. Alan Kirk; Chair, HPS Search Committee; Department of Human Services; 1000 Chastain Rd., Mailbox #1801; Kennesaw, GA, 30144-5591; E-mail: □ HYPERLINK "mailto:akirk@kennesaw.edu" Dakirk@kennesaw.edu. Website: www.kennesaw.edu. Deadline: 5/24/02

Exercise & Sport Science - Assistant/Associate Professor -Qualifications: Earned doctorate in Athletic Training or related area (ABD considered). Teaching experience in athletic training related courses at the college/university level and clinical instruction experience desired. Eligibility to become an Approved Clinical Instructor required. Responsibilities: Teach in CAAHEP accredited undergraduate Athletic Training Education Program and in undergraduate and graduate programs in the Exercise and Sport Science Department. Provide clinical instruction to athletic training students. Research and publications expected for tenure and promotion. Send letter of application, CV, and names of 3 professional references to Alice Wilcoxson; Chair Athletic Training Search Committee; Eastern Kentucy University; 231 Moberly; Richmond, KY 40475. Start Date: 8/12/02. Deadline: 5/15/ 02.

<u>Sports Medicine – Assistant Professor</u> – <u>Qualifications</u>: Doctorate required. (ABD candidates considered with completion by start date). Teaching experience in clinical exercise physiology and evidence of ongoing scholarly productivity preferred. <u>Responsibilities</u>: Teach undergraduate courses; student recruitment and advising; supervision

of internship placements; scholarly activity; service to university, community and profession. Send letter of application (job #1929), resume, names and phone numbers of 3 references to Janet Whatley Blum, DSc; Assistant Professor of Sports Medicine; RE: 101 University of Southern Maine; 211 Field House; 37 College Ave.; Gorham, ME 04038-1083. Email: jwblum@usm.maine.edu. Website: http://www.usm.maine.edu/hrs/jobs/sports1.htm.Start Date: 9/02.Deadline: Immediate.

Exercise Science – Assistant Professor – Qualifications: Terminal degree in exercise physiology or related field (ABD considered). Eligible for graduate faculty status. <u>Responsibilities</u>: Teach anatomy and physiology, kinesiology, exercise physiology (graduate and undergraduate), research methods and other classes as assigned by the department head. Scholarship and service activities required. Send letter of application, resume, transcripts, and a list of 3-5 references to Dr. Angela Grube; Department of Health and Human Performance; Western Carolina University; Cullowhee, NC 28723. Email: <u>agrube@wcu.edu</u>. Website: www.ceap.wcu.edu/hhp/hhphome.html. Start Date: 8/02. Deadline: Immediate.

Exercise Science – Assistant/Associate Professor – Qualifications: Terminal degree in physical education, exercise science, kinesiology, or closely related field. <u>Responsibilities</u>: Direct undergradute/graduate program. Supervise laboratory; advising, and research. Send letter and CV to Tennessee State University; Office of Human Resources; 3500 John A. Merritt Blvd; Nashville, TN 37209. Website:
HYPERLINK "http://www.tnstate.edu"

Kinesiology – Assistant Professor – Qualifications: Doctorate in kinesiology (ABD considered). Teaching experience, evidence of scholarly productivity, and skills using technology in the field preferred. <u>Responsibilities</u>: Teach undergraduate lecture and activity courses in kinesiology; assist with academic advisement; participate in curricular planning, implementation, and evaluation; participate in research/ scholarly activities in the field of kinesiology. Send letter of interest, CV, copies of official transcripts, and a list of 5 references with name, address, and telephone number to Human Resources; The University of Texas at Brownsville and Texas Southmost College; 80 Fort Brown; Brownsville, Texas 78520; Tel: 1-800-544-8208/956-544-8205. Fax: 956-982-0175. Website: <u>http://www.utb.edu</u>.

Physical Therapy – Assistant/Associate Professor – Qualifications: Expertise in a variety of practice areas will be considered, but Neuromuscular, Cardiopulmonary and Integumentary areas preferred. Post-professional doctoral degree desired. Academic master's degree and clinical specialist certification will be considered. <u>Responsibilities</u>: Teaching, research and service. Send letter of interest and CV to Michelle Cohen, Ph.D; Chair of the Search Committee; University of the Sciences in Philadelphia; 600 South 43rd Street; Philadelphia, PA 19104; Tel: 215-596-8540; Fax: 215-895-3121; Email: <u>m.cohen@usip.edu</u>. Start Date: 7/01/02. Deadline: Immediate.

Physical Therapy – Department Head – Qualifications: Doctoral Degree (a PhD in physical therapy is preferred; a PhD or EdD in a related field will also be considered) and eligibility for Tennessee physical therapy licensure. <u>Responsibilities</u>: Program development and evaluation, administration, teaching, scholarly activities and service to the University. Send letter of interest, CV, and names, addresses and phone numbers of 3 references to: David Levine, PT, PhD, OCS; Physical Therapy, Dept. 3253; University of Tennessee at Chattanooga; 615 McCallie Ave; Chattanooga, Tennessee 37403; Tel: 423-755-5240; Fax: 423-785-2215. Start Date: 7/01/02. Deadline: Immediate.

Physical Therapy Assistant – Instructor and Program Director – <u>Qualifications</u>: Master's degree in the field. For more information, contact Human Resources Office; Community Colleges of Spokane; 501 N. Riverpoint Blvd; MS 1004; P.O. Box 6000; Spokane, WA 99217-6000. Tel: 509-434-5040; Website: <u>http://ccs.spokane.cc.wa.us</u>. Deadline: 5/17/02.

Mechanical Engineering – Assistant/Associate/Full Professor – Qualifications: Ph.D. degree in Aerospace and Mechanical Engineering or closely related discipline, and demonstrated research potential or accomplishments. Previous teaching experience desirable. Preference given to candidates with expertise in biomedical engineering, controls, MEMS, nanotechnology, optical engineering, and space exploration. Expertise at the interface of two or more of these areas especially encouraged. <u>Responsibilities</u>: Teach at undergraduate and graduate levels. Establish active research programs. Send cover letter including statement of professional interests and goals, CV, and names and contact information of 3 professional references to: Prof. John G. Williams, Chair; AME Faculty Search Committee; The University of Arizona; 1130 N. Mountain; P.O. Box 210119; Tucson, AZ 85721-0119. Deadline: Immediate.

Engineering – Department Chair – Qualifications: Advanced degree in engineering (Ph.D. preferred); teaching experience in a relevant engineering discipline at the undergraduate level; strong commitment to the mission of the college; experience with personnel supervision. <u>Responsibilities</u>: Provide leadership in curriculum development and outcomes assessment. Send resume, letter of interest, names and addresses of 3 references to Chair, Engineering Department Search; c/ o Human Resources Office; SUNY Maritime College; 6 Pennyfield Avenue; Bronx, NY 10465; E-mail: <u>mstewart@sunymaritime.edu</u>. Deadline: Immediate.

Health Studies - Associate/Full Professor - Qualifications: Ph.D. or MD/Ph.D., solid teaching skills, and an active research program that has potential for undergraduate student participation and is supported by extramural funding. Interest in Neuroscience or related field preferred, however, any candidate with health science expertise to complement the existing faculty is encouraged to apply. Responsibilities: Mature the undergraduate sciences program. Develop the current science curriculum to prepare students for careers, medical school or advanced study in areas such as neuroscience, immunology, genetics, bio-ethics, biotechnology, and science journalism. Send cover letter, current CV, and names/contact information of 3 references to Dr. Donna Jasinski, Search Chair. Electronic submissions encouraged to jasinskd@georgetown.edu; Fax: 202-687-2128; Mailing address: 3700 Reservoir Road, NW; Box 571107; Washington, DC 20057. Website: http://snhs.georgetown.edu/academics/undergraduate/bshs.html. Deadline: 5/15/02.

Neurobiologist-Assistant/Associate/Full Professor-Qualifications: Specialization/research in neuroscience is desirable, however, other specializations will be considered. Additional requirements include a doctorate and an active research project. <u>Responsibilities</u>: Teaching, course development, and research training will also be required. Contact: Dr. Isabella Finklestein, Interim Chair; Department of Biological Sciences; Tel: 404-880-8131; Fax: (404) 880-8065.

Other Positions

Strength & Conditioning Coach – Qualifications: Bachelor's degree with emphasis in Sports Sciences. Master's degree, NSCA certification, and previous NCAA Division I institutional coaching experience preferred. Excellent communication, organization, and administrative skills. Proven success in all areas of strength and conditioning, strength

(continued on next page)

(Faculty Positions continued)

training, Olympic lifts, plyometrics, speed development, conditioning, flexibility, and nutrition. <u>Responsibilities</u>: Establish weight training regimen for student-athletes (16 sports). Develop safe and effective lifting techniques. Supervise weight room day-to-day activities. Total program development and design. Send application (available at www.jsu.edu), resume, names, addresses and telephone numbers of 3 references to Human Resources; Jacksonville State University; 700 Pelham Road North; Jacksonville, Alabama 36265. Deadline: Immediate.

Head Athletic Trainer – Qualifications: NATA certification and master's degree required. Support mission of a Christian liberal arts college and affirm traditional Christian values. <u>Responsibilities</u>: Manage the athletic training services for 7 men's and 7 women's varsity sports, supervise athletic training students, and teach athletic training courses in collaboration with the Athletic Training Program Director. Send CV, transcripts, cover letter, philosophy of education, and 3 letters of reference with contact information/phone numbers and e-mail addresses to Dr. Raymond Russin; Vice President/Academic Dean; Athletic Training Search; Kansas Wesleyan University; 100 Claflin Street; Salina, Kansas 67401. Start Date: 8/02. Deadline: Immediate.

Research Associate – Qualifications: Master's degree in Biology or Molecular Biology. <u>Responsibilities</u>: Use various physiology, cell biology, biochemistry, and molecular biology research techniques, such as cDNA cloning, PCR, Western Blot, Southern Blot, Northern Blot, cell culture, and protein purification, as gene expression and regulation, protein kinase regulation, and immunoanalysis of DNA and/or gene therapy to define cellular and molecular pathways as it relates to medical research, including testing of sperm functions. Send resume to Dr. Erwin Goldberg; Northwestern University; 2153 North Sheridan Road; Evanston, Illinois 60208-3500.

Research – Molecular Biology – Qualifications: Master's degree in Molecular biology, Physiology, or Life Sciences. <u>Responsibilities</u>: Use various molecular biology, cell biology, physiology, and life science techniques such as DNA/RNA isolation, RT-PCR, electrophoresis, real time PCR, protein purification, Northern/Southern blots, and protein isolation to investigate the biological effects of toxicity in mammalian cells. Send resume to Hilary Godwin, Associate Professor; Northwestern University; 2145 Sheridan Road; Evanston, Illinois 60208.

Product Testing Administrator (Reference Code: Product Testing/ **EW**) to work at New Balance Athletic Shoe, Inc., in Lawrence, MA. Qualifications: BA/BS in biomechanics or exercise science. Experience in human subject testing and writing testing protocols preferred. Excellent written and verbal communication skills. Computer knowledge in MS Office applications. Knowledge of biomechanical needs of athletic footwear. Experience working with athletes and ability to effectively communicate with them regarding fit, function, and comfort of athletic footwear. Responsibilities: Oversee all aspects of Product Testing within the Technical Development Center. Supervise Wear Test Coordinator and the Product Testing area to ensure it is conducted as designed and provides the Product Development Teams with accurate information. Develop testing protocols and conduct tests as needed. Write, distribute, and present test results to Product Development Teams, Tech Reps, Sales Reps, etc. Complete analysis of data collected during wear, performance and biomechanical testing. Coordinate test requirements with the Product Development Teams. Create and oversee the maintenance of test databases. Contact information: Erin Walsh; New Balance Athletic Shoe Inc.; 5 South Union Street; Lawrence, MA 01843; Fax: 978-725-2713; Email: erin.walsh@newbalance.com.

Product Testing Analyst (Job Code: INWSAP15343) to work at Nike in Portland, OR. <u>Qualifications</u>: Bachelor's degree with background in Sensory Analysis, Scientific Test Design and Analysis, Biomechanics, or an equivalent analytical field. Two years' experience in apparel or the sports footwear industry. Computer skills in word processing, spreadsheet, database, and statistical analysis procedures. Strong communication skills. Ability to analyze test information and subjective feedback in a concise and understandable manner. Understanding of apparel materials, components, construction, and production processes preferred. <u>Responsibilities</u>: Point person for testing within category's product creation team. Establish guidelines to assign priority to projects and define product-testing agendas aimed at improving product performance and maximizing the use of testing resources. Apply online at <u>www.nikebiz.com/applynow</u>.

Research & Development Engineer to work at Thoratec Corporation in Pleasanton, CA. <u>Qualifications</u>: B.S. or graduate degree in Engineering, with minimum of 2-5 years experience in product development or support or research. Experience in design of cardiovascular devices preferable. Experience with range of technical activities desirable, including biomaterials, biomechanics, medical and/or chemical engineering. <u>Responsibilities</u>: Development of new and existing vascular graft products. Contribute to other engineering activities affecting current and future products, including failure investigation, process improvements, and trouble shooting. Send resume and salary requirement to <u>HRJobsCA@thoratec.com</u> or fax to 925-847-8626. Contact information: Thoratec Corporation; 6035 Stoneridge Drive; Pleasanton, CA 94588.

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 website (www.isbweb.org/jobs), and on the Biomechanics World Wide website (www.per.ualberta.ca/biomechanics) under the Career Opportunities category.



Paid Job Listing



Associate Research Engineer Department of Orthopaedic Surgery The University of Iowa

The University of Iowa is seeking an Associate Research Engineer to provide technical expertise/leadership and scientific assistance in the management, design, and conduct of the Orthopaedic Biomechanics Laboratory's research program in biomechanics of peri-articular fractures. Requires Ph.D. in biomedical engineering (biomechanics emphasis), mechanical engineering, or civil engineering

Applicant should possess a high level of technical competence in both computational and experimental biomechanics, as applicable to the musculoskeletal system. Experience specifically in orthopaedic biomechanics is necessary. The applicant should have a record of productive scholarship supported by substantial publications, presentations, technical reports, etc.

Demonstrated capability in securing external funding is highly desirable. The applicant should have clear potential for attracting major peer-reviewed grants, and to develop an independent research program in orthopaedic biomechanics. and approximately ten years post-Ph.D. experience.

Applicant should have a record of success in research and development projects involving contact mechanics of articular joints.

A position description providing more details of the skills desired will be sent to all applicants.

Interested candidates should contact: Lois Lembke, Department 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.

SUPERVISOR

Movement Science Lab Texas Scottish Rite Hospital for Children, Dallas, Texas

Texas Scottish Rite Hospital for Children is world-renowned for its care of pediatric patients with orthopaedic and related neuromuscular problems. TSRHC is a financially stable hospital with a substantial endowment for the support of its highly productive research program. Patient care and associated research are driven solely by the needs of the patients and are free of the constraints imposed by external managed care organizations.

TSRHC has a modern, fully-equipped Movement Science Lab in a 2500 square foot facility. Equipment includes: 8-camera Vicon 512 motion capture system, Motion Lab Systems MA100 EMG system (10 channels), 2 AMTI force plates, Biodex System 3 Multi-joint isokinetic machine, Cosmed K4b² Portable Gas Exchange system, and a Novel EMED SF pedobarograph (4 sensors/cm²). The lab currently has four full-time staff, plus a secretary. At any time, there are at least 20 research projects in which the lab is a participant. Some projects may involve movement of the upper limbs and the spine, as well as the lower limbs.

TSRHC is now accepting applications for Supervisor of its Movement Science Lab. The Supervisor will coordinate the clinical and research activities of the Lab. The Supervisor should have a strong interest in:

Working with pediatric patients and their problems

- Assisting clinicians in the characterization, diagnosis, and treatment of orthopaedic and related neuromuscular disorders
- Working closely with clinicians and other hospital staff on research projects
- Finding better ways of evaluating human movement and muscle function, and assessing the effectiveness of clinical interventions on patients
- Mentoring and teaching junior lab staff in order to develop their capabilities to the fullest

Among the qualifications for the Supervisor position are:

At least five (5) years of experience in patient-related aspects of biomechanical measurement and analysis, resulting in publications in peer-reviewed journals.

At least three years of supervisory experience in a gait lab

Minimum of a Master's degree in a field relevant to movement science.

Recent experience with Vicon systems

Excellent computer skills, particularly in the modeling of human movement.

There is the possibility of a faculty appointment at The University of Texas Southwestern Medical School at Dallas, depending upon qualifications. Qualified candidates, please e-mail vita to: richb@tsrh.org, or fax to: (214) 559-7872 (attn: Dr. Richard Browne)

Calendar of Events

Andrew Karduna

2002 Meeting of the International Shoulder Group

June 16-18, 2002, Cleveland, Ohio Abstract deadline – past *feswww.cwru.edu/isg*

20th International Symposium on Biomechanics in Sports July 1-5, 2002, Cáceres, Spain Abstract deadline - past *www.unex.es/congresos/isbs2002*

7th International Symposium on the 3-D Analysis of Human Movement

July 3-5, 2002 - Newcastle upon Tyne, United Kingdom Abstract deadline – past www.ncl.ac.uk/crest/isb3d

4th World Congress on Biomechanics 26th Annual Meeting of the ASB

August 4-9 2002, Calgary, Canada Abstract deadline - past www.wcb2002.com

13th Conference of the European Society of Biomechanics

September 1-4, 2002, Wroclaw, Poland Abstract deadline - past www.esb2002.pwr.wroc.pl

46th Annual Meeting of the Human Factors and Ergonomics Society

September 23-27, 2002, Pittsburgh, Pennsylvania Abstract deadline - past *hfes.org*

21st Southern Biomedical Engineering Conference

September 27-29, 2002 – Washington DC Abstract deadline - past *sbec.abe.msstate.edu*

12th Annual Meeting of the European Orthopaedic Research Society

October 11-13, 2002, Lausanne, Switzerland Abstract deadline - past www.eors2002.ch

2nd Joint Engineering in Medicine and Biology Society and Biomedical Engineering Society Conference

Oct 23-26, 2002, Houston, Texas Abstract deadline – past *embs-bmes2002.org*

2002 ASME International Mechanical Engineering Congress and Exposition November 17-22 2002, New Orleans, Louisiana Abstract deadline – past http://www.asme.org/congress

49th Annual Meeting of the Orthopaedic Research Society February 2-5, 2003, New Orleans, Louisiana Abstract deadline - July 13, 2002 *www.ors.org*

2nd International Symposium on Adaptive Motion of Animals and Machines

March 4-8, 2003, Kyoto, Japan Abstract deadline – October 15, 2002 www.kimura.is.uec.ac.jp/amam2003

www.gcmas.org/meeting.html

Annual Meeting of the Gait and Clinical Movement Analysis Society Spring 2003, Wilmington, Delaware

50th Meeting of the American College of Sports Medicine May 28-31, 2003, San Francisco, California *www.acsm.org*

2003 Summer Bioengineering Conference June 25-29, 2003, Key Biscayne, Florida www.asme.org/divisions/bed/events

19th Congress of the International Society of Biomechanics

July 6-12, 2003, Dunedin, New Zealand *www.isb2003.otago.ac.nz*

World Congress on Medical Physics and Biomedical Engineering

August 24-29, 2003 – Sydney, Australia Abstract deadline – March 2003 www.wc2003.org

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NOTE: For a more comprehensive international listing, please visit ISB's website at: www.isbweb.org/conferences



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AMTI's Biomechanics Force Platforms

- Precision measurements for Gait, Balance, and Sports
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- 12 standard sizes—with custom sizes available
- · 6-Year warranty

BioSoft Data acquisition and analysis software

- Collect and analyze data from up to 4 force platforms, with 8 extra channels for other instruments
- Extensive analysis modules and statistical capabilities
- Export graphs, data, and statistics into standard spreadsheet and word processing applications.

Accusway System and SWAYWIN software



- For Balance and Postural Sway measurement
- Lightweight, low profile, portable design is ideal for laptops in the field or desktops in the lab.
- Extensive analysis, plotting, and statistical information

With AMTI, exceptional biomechanical analysis isn't a goal. It is a given

Call toll free 1-800-422-AMTI for more information and to speak with an AMTI representative.



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