Welcome to our incoming and returning students! May this be the start of your best academic experience with us thus far.

You will notice the ambiance of excitement in our department as we busily prepare to celebrate our BPK Alumni Reunion, to be held on Friday, September 11th, 2015. Many of our Alumni will be attending this event, to catch up on events and share stories of our time together in either the School of Kinesiology or the BPK Department. Historic photos of various events will also be made available for everyone’s enjoyment via video.

What stands out the most during this reunion time of sharing and reminiscing, are the strong connections many of us hold with each other, as evidenced in photos collected over the years. Currently we have gained another tool that has made connections even more accessible and convenient, through LinkedIn. Here is the link: https://www.linkedin.com/grp/home?gid=6524724

We have a lot to be proud of as Kines/BPK Alumni. I invite you to review many of our accomplishments by accessing and reading archived issues of our Newsletter at this link: https://www.sfu.ca/bpk/news_events/newsletter.html This is also an opportunity to remember those who left an indelible mark on our lives but who are no longer with us.

September 1st, 2015 will also be the beginning of two significant achievements: Congratulations to Dr. Max Donelan on his promotion to Professor, and we Welcome Dr. Sam Doesburg who joins our faculty as Associate Professor.

We are also very excited to announce the recent addition of the Dill twins to our faculty family! (see Newcomers section on page 3).

GLEN TIBBITS, Chair

In 1973, Craig started his M.Sc. in Kinesiology. While working on this degree, Craig became a Lab Instructor in Kinesiology, and he has never left.

Now a Senior Lecturer in the Department of Biomedical Physiology and Kinesiology (BPK), formerly the School of Kinesiology, all students get to experience Craig’s teaching. First year students take Craig’s “Introduction to Kinesiology” course, and senior students finish their degrees with his “Human Physiology Lab” course. Students comment that Craig is a “Really great professor. You can tell he’s knowledgeable and passionate about what he teaches. Very funny and engaging during lectures... actually makes you want to go to class.”

Craig has been influential in other ways. He was Chair of the Kinesiology Undergraduate Program Committee for nine years.

In 1991, CRAIG ASMUNDSON was one of five founding directors of The British Columbia Association of Kinesiologists (BCAK), and its President from 1993 to 1995. The BCAK promotes kinesiology in BC as a valuable health care service. It supports the advancement of the Kinesiology profession, provides resources to its members to assist them in their practice, and promotes a code of ethics for members.

In 1991, CRAIG ASMUNDSON was awarded the SFU C.D. Nelson Memorial Prize in recognition of his work coordinating and leading the re-enactment of Simon Fraser’s voyage down the Fraser River as part of Simon Fraser University’s 25th anniversary celebrations in September 1990.

In 1996, Craig was diagnosed with prostate cancer. He took this as an opportunity to find out as much as he could about the disease and treatment methods, and to use this knowledge to educate friends, colleagues, and students, often by telling detailed and funny stories of his very personal experiences. Craig and his wife Gloria, and others, started a prostate cancer support group for people in Coquitlam, Port Coquitlam and Port Moody; helped to set up

Craig ASMUNDSON
MSc (Kin), 1980 / BSc (Kin), 1972

50 YEARS AT SFU AND STILL COUNTING!

SFU opened its doors in 1965, and CRAIG ASMUNDSON was there as a charter student! After changing majors a few times, Craig entered the Kinesiology undergraduate program when it began in 1969.
a steering committee to coordinate area support groups outside of the Tri-Cities, and lobbied for increased research funding. In 1997, he was one of the founding directors and vice-chair of the British Columbia Foundation for Prostate Disease, a patient driven foundation to raise money for prostate cancer research and education, and which has since grown considerably and changed its name to the Prostate Cancer Foundation of BC.

When SFU initiated its first annual Terry Fox Day celebration in 2001, Craig Asmundson was Vice-Chair of the University planning committee for this event, and was later the Chair of the Terry Fox Day Committee from 2002 to 2004. Terry was one of our students, a first year Kinesiology student at SFU when he was diagnosed with bone cancer. Every year the celebrations begin with the Terry Fox run around campus. And every year, Craig captains the BPK team. Under his leadership, BPK is usually in the running for leadership, volunteerism, team work and/or ambassadorship of BPK to the external community.

These days, Craig has slowed down, marginally, finding time to spend with his four grandchildren, enjoying outdoor pursuits, visiting Disneyland, etc. Craig says that he has never had a day when he wasn’t happy to be at SFU.

On behalf of the BPK Department, thanks for all the years of outstanding service, Craig!

Submitted by Sophie Dunbar

ANNOUNCING TWO NEW BPK ENGAGEMENT AWARDS

The Craig Asmundson BPK Engagement Award

The Craig Asmundson Endowment Fund was established at Simon Fraser University in 2015 with a generous gift from Craig Asmundson, who is a faculty member in the Department of Biomedical Physiology and Kinesiology (BPK), in honour of the university’s upcoming 50th anniversary and Craig’s 50 year legacy to SFU.

The endowment will be eligible for matching funds from the Department of Biomedical Physiology and Kinesiology. The endowment fund will support the Craig Asmundson BPK Engagement Award.

The award is intended to recognize and provide funding to a BPK undergraduate student who has demonstrated positive contributions to the SFU community including university engagement, leadership, volunteerism, team work and/or ambassadorship of BPK to the external community.

The Craig Asmundson BPK Engagement Award, valued at a minimum of $900, is available to an undergraduate student who meets the following criteria:

- is enrolled in full-time studies (9 units or more) in an honours or major program in the department of Biomedical Physiology and Kinesiology;
- is in good academic standing; and has demonstrated positive contributions for the SFU & BPK community including university engagement, leadership, volunteerism, team work and/or ambassadorship of BPK to the external community and/or mentorship to other students.

https://www.sfu.ca/bpk/undergrad_programs/funding-opportunities/Craig-Asmundson-Fund.html

Dr. Josephine Anthony Award in BPK

The Dr. Josephine Anthony Endowment Fund was established at Simon Fraser University in 2015 with a generous gift from Dr. Josephine Anthony, faculty member in the Department of Biomedical Physiology and Kinesiology for over 35 years, in honour of the university’s 50th anniversary.

The endowment fund is eligible to receive a match from the Department of Biomedical Physiology and Kinesiology (BPK) in the equivalent amount of the original pledged gift.

The award is intended to provide funding to an undergraduate student in BPK who has overcome adversity in their life, in recognition of their achievements and motivating others by their example.

The Dr. Josephine Anthony Award in BPK is one award, valued at a minimum of $900, and is available to an undergraduate student who meets the following criteria:

- is enrolled in full-time studies (9 units or more) in an honours or major program in BPK;
- is in good academic standing; and has overcome medical, personal, financial adversity or other obstacles

https://www.sfu.ca/bpk/undergrad_programs/funding-opportunities/Josephine-Anthony-Fund.html

BPK WELCOME BBQ

The Department of Biomedical Physiology and Kinesiology invites you to our

Annual Welcome Barbeque Lunch Thursday, September 24th!

This is an event for new and current Biomedical Physiology and Kinesiology students, staff and faculty.

The lunch will be held in the courtyard beside K8638. Please bring a donation of $4.00 in support of the Terry Fox Foundation.

Check here for the Registration link, which will be posted soon!


JOIN TEAM BPK @ TERRY FOX WALK/RUN

Terry Fox Day at SFU will be held this year on Friday, October 2, 2015 at 12:30 p.m. The purposes of the event are:

- to celebrate the memory of Terry Fox, who was an SFU Kinesiology student;
- to raise money for the Terry Fox Foundation to help find a cure for cancer; and
- to enhance community spirit at SFU.

Event details will be sent to department members in the next few weeks.

Craig Asmundson, BPK Team Captain
Temperature change can trigger Sudden Cardiac Death

July 07, 2015

Sudden death caused by cardiac arrhythmia can be triggered by changes in body temperature. This is the finding of SFU professor Peter Ruben and his collaborators, Mena Abdelsayed and Colin Peters, published today in the Journal of Physiology.

The soccer player who drops dead in the middle of a game, or the infant who dies during sleep is often a victim of arrhythmia. Sudden cardiac death has several causes, including inheritable mutations in our DNA affecting structure and function of proteins in the heart. Ruben notes that, “By studying the proteins that underlie electrical signaling in the heart, and by subjecting those proteins to conditions that are similar to the stress of exercise, we found that in some cases, temperature can cause changes that trigger arrhythmia.”

Ruben explains that when muscle cells in our hearts contract rhythmically and in a well-coordinated way, the heart efficiently pumps blood throughout our bodies. When the rhythmic pumping action is disrupted by an arrhythmia, our hearts can no longer distribute blood. In extreme cases, this leads to sudden cardiac death. He adds, “The electrical signal behind muscle contraction is produced by tiny protein molecules in the membrane of our heart cells. Temperature fluctuations modify the way all proteins behave, but some DNA mutations can make proteins especially sensitive to changes in temperature.”

Ruben’s team found a protein that is far more sensitive to temperature than normal. When normal body temperature goes up for example, during exercise, or goes down during sleep, the affected protein no longer functions normally. The disrupted protein function causes the electrical signal in our heart to become erratic, triggering an arrhythmia and, potentially, sudden cardiac death.

The DNA mutation that creates more temperature-sensitive proteins is very rare, but it can produce deadly results when combined with another arrhythmia trigger, such as changes in the acid content of our blood that occur normally as a by-product of blood that occur normally as a by-product of exercise and sleep, particularly sleep apnea. Ruben notes that with this new knowledge, people can examine their family histories and, if sudden cardiac death is part of that family history, or if they suffer from...
unexplained fainting, they can seek medical advice. Through a combination of electrocardiograms, genetic screening, and lifestyle management, some tragic deaths caused by cardiac arrhythmia may be prevented.

Read the story in The Vancouver Sun, 24 Hours and Shape magazine. Watch the Global TV story and live interview.

SFU study finds fat accumulation in human skeletal muscles concerning

July 28, 2015

SFU professors JAMES WAKELING (left), a comparative biomechanist, and NILIMA NIGAM, a mathematician, have discovered the mechanics behind a natural physiological process that could compromise our mobility as we age and gain weight.

By Carol Thorbes, SFU News

Our efforts to battle the bulge and stay youthful aren’t futile but they are certainly compromised by a physiological process that undermines our mobility, according to a Simon Fraser University scientist.

James Wakeling, a comparative biomechanist in the Department of Biomedical Physiology and Kinesiology, and his research team are the first to isolate mechanisms that link intramuscular fat to reduced muscle performance.

They used a novel modeling approach to understand the effect of different distributions of fatty tissue within a muscle, on the mechanical output of that muscle.

Their research, published in the Journal of the Royal Society Interface, documents how our ability to perform everyday activities declines naturally with fat accumulation in human skeletal muscles.

Aging, obesity and a variety of diseases worsen or advance this inevitable process. Human skeletal muscles are attached to bones by bundles of collagen fibres known as tendons. There are approximately 640 of them in our bodies. “Accumulation of intramuscular fat seems to be ubiquitous during aging and for people with obesity,” says Wakeling.

“Understanding how this fat alters the ability of our muscles to develop force will mark an important step to help maintain mobility and a healthy lifestyle in all Canadians, even if we can’t halt the process completely.”

His team’s findings reveal a general deterioration in muscle quality due to fat infiltration. The infiltration alters muscle-tissue composition and consequently changes the way in which contractile forces are distributed through the muscle. This, in turn, substantially reduces muscle force as a whole.

Interdisciplinary collaboration with SFU math professor Nilima Nigam made this work possible. She helped develop the conceptual mathematical and computational models used in the study.

“This study highlighted, for me, the power of genuine interdisciplinary collaboration to answer deep conceptual questions,” says Nigam “We’ve used tools from physiology, mathematics, biomechanics and scientific computing to address questions that are of interest in public health.”

Funding for this study was provided by the Natural Sciences and Engineering Research Council of Canada.

Summer sojourns: research project paves way for diagnosing heart conditions by smartphone

August 04, 2015

ALEXANDRE LAURIN (centre) and his Parisian research colleagues DOMINIQUE CHAPELLE (left) and SÉBASTIEN IMPERIALE (right) are working on a 3D model of the human heart and thorax that may one day lead to a smartphone app capable of diagnosing some heart conditions.

By Allen Tung, SFU News

Imagine using your smartphone to diagnose a heart condition such as an irregular heartbeat or heart inflammation.

That’s what ALEXANDRE LAURIN, a Simon Fraser University PhD student in biomedical physiology and kinesiology (BPK), envisions one day for the research he is doing this summer at École Polytechnique in Paris.

He is working with an international research group there – the Mathematical and Mechanical Modeling with Data Interaction in Simulations for Medicine (M3DISIM). The group is programming a human heart’s mechanics into a 3D computer model of the human heart and thorax (chest, including the thoracic cavity and thoracic wall) that they have developed.

“You need the model first to understand what’s going on, then you can build the app for a smartphone,” says Laurin.

The model, built last year in Paris, simulates the vibration of a human thorax and then manipulates or pushes the vibration to evaluate the model’s reaction.

“This told us how the sternum vibrated, but it didn’t tell us which heart movement created which vibration,” says Laurin.

Once they’ve finished programming their model with an actual heart’s mechanics, Laurin and his collaborators will analyse how a beating heart affects the thorax.

They’ll compare simulated vibration signals to actual ones—known as seismocardiograms—that correlate with heart abnormalities. These were recorded over the years at SFU’s Aerospace Physiology Laboratory (Dr. ANDREW BLABER, Supervisor).

“If the vibrations the model creates look like what we’re measuring using our instruments, then we’re doing a good job and we can move on to the next step,” Laurin says.

This is an important first step in using vibrations to diagnose heart conditions. But, says Laurin, “Precise self-diagnosis by phone is probably 10 years into the future.”

Currently, the model is only able to determine what is happening by using the time intervals between vibrations rather than the vibrations themselves. “For example, when we record a series of vibrations, we know which vibration corresponds to the last valve opening for the blood going through the aorta and which corresponds to that valve closing,” Laurin says.

“What we don’t know is what is causing the vibration reading, so if we ever want to diagnose wrong or weird vibrations, we need to really understand the mechanical and electrical variables of each vibration.”

Laurin laid the groundwork for this research with the Paris group last summer after winning a Graduate International Research Travel Award from SFU’s Office of Graduate Studies and Postdoctoral Fellows. He also received support from BPK professor...
**Andrew Blaber** through a France Canada Research Fund to study seismocardiograms.

**Alexandre Laurin** will finish his PhD at SFU in September before returning to France in October, where he will devote at least a year to perfecting the model and developing an app.

**Publications**


**Successful Defences**

**Jessica Inskip** *PhD* June 8th, 2015

“Cardiovascular and Cerebrovascular Consequences of Spinal Cord Injury.”

Examining Committee:

- **Dr. Tom Claydon**, Chair
- **Dr. Victoria Claydon**, Senior Supervisor
- **Dr. Will Cupples**, Supervisor
- **Dr. Brian Kwon**, Dept of Zoology, U British Columbia
- **Dr. David Clarke**, Internal Examiner
- **Dr. Jill Wecht**, Medicine and Rehabilitation Medicine, Mt. Sinai School of Medicine, U Toronto

**Nicholas Mitrou** *PhD* July 21st, 2015

“Internephron synchronization of renal blood flow autoregulation.”

Examining Committee:

- **Dr. Miriam Spering**, Chair
- **Dr. William Davidson**, Dept of Molecular Biology and Biochemistry, SFU
- **Dr. Marinko Sarunic**, School of Engineering Science, SFU, Internal Examiner
- **Dr. Donald Welsh**, Physiology & Pharmacology, U Western Ontario, External Examiner

**Andreas Miller** *MSc* August 14th, 2015

“The Effect of Glaucoma on Gaze Behaviour and Mobility While Walking in Cluttered Environments.”

Examining Committee:

- **Dr. Tom Claydon**, Chair
- **Dr. Dan Marigold**, Senior Supervisor
- **Dr. Robert Straith**, Supervisor
- **Dr. Miriam Spering**, Ophthalmology and Visual Science, U British Columbia, External Examiner

**Kinesiology Minor Graduate Lindsey Butterworth nominated for the NCAA Woman of the Year Award**

July 23, 2015

*Photo by Phoebe Lim*  

**By Steve Frost – Sports Information Director, SFU Athletics**

BURNABY, BC – Simon Fraser University middle distance runner Lindsey Butterworth has received the Great Northwest Athletic Conference nomination for the NCAA Woman of the Year Award.

Now in its 25th year, the Woman of the Year award honors graduating female college athletes who have exhausted their eligibility and distinguished themselves throughout their collegiate careers in academics, athletics, service and leadership.

Butterworth enjoyed a remarkable senior season at SFU, winning two NCAA titles and then competing for Team Canada at the FISU World University Games where she placed seventh in the world. [http://athletics.sfu.ca/roster.aspx?rp_id=1638](http://athletics.sfu.ca/roster.aspx?rp_id=1638)

**An Interview with SFU’s Smartest Athlete**

**by Jamal Dumas**

*The Peak – June 22, 2015*

**How does he do it?**

It turns out you really can have it all. SFU athlete **Lorenzo Smith** was recently selected for the 2015 Great Northwest Athletic Conference Track and Field Academic All-Conference team for demonstrating outstanding achievement in academics and athletics.

**Lorenzo Smith**  

BPK 3rd Year Undergraduate Student

In fact, Smith is the top student among the 163 in the conference with a GPA of 4.21 (yes, you read that correctly). At 21 years old, Smith just finished his third year at SFU while completing a major in Biomedical Physiology in the BPK department.

A Chilliwack native, he has run track since the third grade and now he runs for the SFU Track (800m and 1500m) and Cross Country teams. Smith sat down with *The Peak* to talk about the key to his success.

**The Peak**: How did you initially react when you heard about the GNAC Academic All-Conference team?

**Lorenzo Smith**: It’s great. It’s an honour and it’s exciting. […] Especially since there’s so many of us on the team who are doing well academically, so it’s nice. We have a really balanced team that way.

**P**: I guess what readers want to know is: what’s your secret?

**LS**: Well I would say there is no secret formula. I don’t think there’s a secret for me, and I definitely don’t think there’s a cookie cutter secret for everybody else. I think it takes a lot of discipline to do well in school. It takes a lot of hard work learning to balance academics and athletics. I don’t know if I have a secret necessarily.

**P**: Have there been any sacrifices or compromises you have to make in your life to accommodate both athletics and academics?

**LS**: Sure, there [are] always sacrifices. I think to be good at something, you have to focus on [it] and sacrifice in other areas. Whether that’s a bit of sleep here and there, which is tough because you gotta rest as an athlete. But sometimes you gotta sacrifice sleep. You gotta sacrifice social time as well. That’s been a big one. […] But I’m trying to be balanced as well.
P: What attracts you to track and field?

LS: It's a funny sport to like. You get better by working really hard. It's not always pleasant. I've always just loved running [. . .] You're just constantly pushing. It's very mental as well. I can't even tell you why I like it necessarily [laughs]. It's not even that fun, to be honest, sometimes. [. . .] I just love running. What can I say?

P: Running is a very individual sport, and when you go to training, you're pretty much only accountable to yourself and that's similar to studying. How do you find motivation and a support system?

LS: I think, for academics, definitely my family has always really supported me. [. . .] I just want to do the best with the resources I have, the time I have, the abilities I have. I've just always been driven to do my best and whatever that looks like I'm okay with.

Track... yeah, it's definitely individual. [. . .] I will say though, even though it's an individual sport, you have your teammates out there counting on you, your training partners counting on you, and we all kind of keep each other accountable.

P: I know a lot of students get distracted by social media. Do you ever get sucked into that abyss or do you limit yourself?

LS: I definitely limit myself [laughs]. I feel pretty strongly about this actually. I have Facebook but I don't have Instagram or Twitter or anything. I think that that is a huge obstacle to progress and success... kind of all the distractions we face as a generation. And I'm convinced a lot of people might find that if they're able to put the distractions aside they might have a bit more success in certain areas. But of course I get distracted like everybody else. That's I think a really important thing though to learn to have that discipline.

P: What are your plans for after you graduate?

LS: I'm not sure yet. I have about two more years. I'll finish up in about five years. My goal for a very long time now has been med school. [. . .] I'm also considering physiotherapy or research as well but definitely further studies.

P: What interests you about medicine?

LS: Definitely the number one thing that draws me is the ability to just help people. To use your skills and your knowledge is really important, I think. I think having knowledge for the sake of having knowledge is just completely pointless. [. . .] Of course, I love science as well.

P: What do you do to unwind?

LS: [Laughs] A good run. A good run helps me unwind.

I'm a pretty boring person. Even though I don't listen to "pump-up" music I do love listening to music. I love being with my family, hanging out with my friends, going to the beach, or something like that.

P: Do you have a personal motto or a kind of saying that you live by?

LS: I don't think I have a single motto that I live by [. . .] No "YOLO." No "Just Do It." None of that. I would say, definitely if I have a motto, it would be something biblical. I find a lot of peace and kind of motivation spiritually in the Bible. Definitely there are some cool mottos in there, I would say.