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U of S graduate students. From left to right: Amy Bunyamin, Mahdi Hosseinitabatabaei, Yuwen Zheng, Kelsey Bjorkman, and Anthony Kehrig.

U of S Graduate Students Receive International Recognition for Research in Musculoskeletal Development in Children

Anthony Kehrig, Amy Bunyamin, Kelsey Bjorkman, Yuwen Zheng, & Mahdi Hosseinitabatabaei

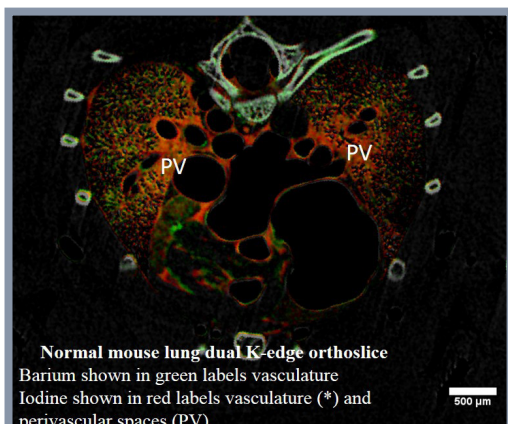
As U of S graduate students in the Colleges of Kinesiology and Engineering, we were given the opportunity to present our pediatric bone research and receive international recognition of our work at the International Workshop on Musculoskeletal and Neuronal Interactions (IWMNI) in Montreal earlier this fall. IWMNI is a multidisciplinary conference centered on musculoskeletal and neuronal health across the lifespan. At this conference, we were able to showcase musculoskeletal imaging studies at the U of S, gain presentation experience, tour new research labs at the Shriners Hospital for Children, and network with leading researchers in the field for future collaboration with the U of S.

MSc student in the College of Kinesiology, Anthony Kehrig, received the Young Investigators' Award at this conference for his research on models predicting bone strength gain following increases in physical activity and bone loading impacts. College of Kinesiology PhD student, Kelsey Björkman, and MSc student, Yuwen Zheng, presented their research on the precision of peripheral quantitative computed tomography (pQCT) based muscle outcomes in children (Kelsey Björkman) and reliability of annual physical performance measures in children (Yuwen Zheng). MSc students in the College of Engineering, Mahdi Hosseinitabatabaei

and Amy Bunyamin, presented their research on the precision of high-resolution pQCT based finite element modeling when predicting bone strength in children (Mahdi Hosseinitabatabaei) and reliability of annual high-resolution pQCT based distal radius and tibia bone microarchitecture measurements in children (Amy Bunyamin).

We also gained valuable insight into current research through lab tours at the Shriners Hospital for Children and presentations by leading pediatric researchers, such as Dr. Alex Ireland, Dr. Eckhard Schönau, Dr. Bettina Willie, Dr. Leanne Ward, and Dr. Saija Kontulainen. Dr. Alex Ireland, a lecturer in physiology at the Manchester Metropolitan University's School of Healthcare Science, set the stage for the conference by discussing important findings such as time since onset of walking predicts tibia bone strength in early childhood. Dr. Eckhard Schönau, a medical director of the Children's Hospital University of Cologne, Germany, presented his innovative research on muscle and bone benefits following whole-body vibration training in children with musculoskeletal and neuronal impairments. Dr. Bettina Willie, an associate professor at McGill's Department of Pediatric Surgery, discussed the human implications of her findings

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Normal mouse lung dual K-edge orthoslice
Barium shown in green labels vasculature
Iodine shown in red labels vasculature (*) and perivascular spaces (PV)

Image of Interest

Research in Dr. Aulakh's lab focuses on the mechanisms of lung inflammation. Previously, we have shown that angiostatin, an endogenously cleaved anti-angiogenic molecule, protects against exuberant neutrophil migration, activation and vascular leak in murine endotoxin challenge model without diminishing the host immune response. Therefore, we sought to image the lung airways and vasculature by employing high-resolution (8 μ m) dual K-edge subtraction computed tomography employing the Canadian Light Source synchrotron x-rays. Microangiography, combined barium or iodine contrast medium, with synchrotron radiation is currently recognized as an effective technique that facilitates visualization of small vessels. Shown is a normal mouse lung dual K-edge orthoslice. The spatial distribution of iodine in red and barium in green shows that iodine is able to diffuse through the larger vessels to the perivascular spaces (marked as PV in the fig.). Barium does not cross the vessels due to relatively larger particle size of the suspension. Image submitted by Dr. Gurpreet Aulakh, Assistant Professor in Small Animal Clinical Sciences at WCVU. The data was presented at 2017 IEEE Medical Imaging conference.

New Cameco Chair to Improve Indigenous Health Outcomes

by Kate Blau

As the inaugural Cameco Chair in Indigenous Health, Dr. Alexandra King is set to lead work to improve Indigenous health care in Saskatchewan. Cameco led the way with a forward-looking donation that was instrumental in creating the chair.

A respected medical researcher, physician and teacher, King will work with Indigenous communities and all relevant stakeholders to understand the health and wellness needs of Indigenous peoples and the structural changes that may be needed for improved health outcomes. As well, she will lead work to enhance Indigenous health education; advocate for improvements and funding; ensure sustainability of effective services and supports; and facilitate the sharing and use of knowledge and resources to support improved Indigenous health and wellness.

King will bring leadership skills in culturally responsive research and care, reconciliation, Two-eyed Seeing (understanding the integration of Indigenous and Western worldviews or forms of knowledge) and ethical space—which needs to be created when peoples with disparate worldviews are poised to engage each other. Ultimately, the goal of



Dr. Alexandra King

the chair is measurably improved health outcomes in Indigenous populations in Saskatchewan and the North.

King is from the Nipissing First Nation in Ontario. A specialist in internal medicine focusing on HIV and hepatitis C, she works with patients in a culturally safe way to help them heal from these acute and chronic conditions. She also teaches Indigenous health and has mentored former and current students at both the undergraduate and graduate levels at Simon Fraser University, focusing on wellness intervention research with Indigenous people in the areas of land-based healing, health determinants, mental health and addictions, blood-borne and sexually transmitted infections, and justice health. King serves on many local and national initiatives, including the Canadian Institutes of Health Research Strategy for Patient-oriented Research (SPOR) Patient Engagement and Ethics Working Group, the Canadian Institutes of Health Research HIV/AIDS Community-Based Research Steering Committee, and the Canadian Network on Hepatitis C (CanHepC).

Dr. King began her 5-year term in the College of Medicine on October 16, 2017.

This article was abbreviated from an original article published on the U of S website, and is reprinted with permission.

Featured Child Health Researcher

Dr. Mateen Raazi

Dr. Mateen Raazi is an Associate Professor in the Department of Anesthesiology, Perioperative Medicine and Pain Management. Dr. Raazi completed his residency training in Anesthesiology at the University of Medicine and Dentistry of New Jersey, USA. He subsequently completed fellowships in Pediatric Anesthesiology, Pediatric Cardiac Anesthesiology and Pediatric Critical Care at the Children's Hospital of Philadelphia and the Children's Hospital of Pittsburgh. He joined the Department of Anesthesiology, University of Saskatchewan in 2000. Dr. Raazi is currently the Executive Director of Education for Anesthesiology. In the past he has served as the Program Director from 2001-2016. As of January 1 2017, he will take over the Department Head.

Dr. Raazi's research interests currently focus on pediatric anesthesiology, post graduate medical education, Competence By Design and Physician Wellness. His current research projects involve



reduction of perioperative anxiety in children (in collaboration with Dr. Kristi Wright of the Psychology Department at the University of Regina), and assessing the impact of the Competence By Design paradigm change on residency education in anesthesiology. He is part of a team of researchers who have recently published seminal papers on the design and implementation of formalized Resident and Physician Wellness programs in anesthesiology. Past areas of focus in clinical research have included assessment of adequacy of airway management in patients under anesthesia. Future research directions which interest Dr. Raazi include the effect of social determinants on patient postoperative outcomes, assessment of residency training methodology on physician outcomes in practice, and the effect of anesthesiologist training on patient outcomes.

In other current academic interests, Dr. Raazi currently serves on the editorial board of the National Curriculum Project in Anesthesiology and is a Competence By Design Co-Lead for the College of Medicine. Dr. Raazi also serves as a reviewer for the Canadian Journal of Anesthesia.

Dr. Raazi's vision is for a more inter-disciplinary and collaborative approach to the design and implementation of outcomes based

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Our Partners

The Jim Pattison Children's Hospital has historically provided strong support for child health research in Saskatchewan. The recent \$50 million donation from Jim Pattison allows for a steady stream of revenue to help meet research and programming needs for generations to come. Groundbreaking opportunities for pediatric researchers in Saskatchewan are on the horizon!



Clinical Investigator Program (CIP) for Residents

The CIP at the University of Saskatchewan is available to residents enrolled in a Royal College accredited residency program who have interest and potential for a career as a clinician investigator or clinician scientist. CIP offers two streams: A Graduate stream for participants enrolled in a graduate (M.Sc. or Ph.D.) program, and a Postdoctoral Stream for residents who already hold a Ph.D. and are interested in undertaking a structured research program. For further information about CIP, please contact Dr. Alan Rosenberg, alan.rosenberg@usask.ca.

on experimental bone loading trials in mice and mechanisms underpinning bone adaptation. Dr. Leanne Ward, an associate professor at the University of Ottawa's Department of Pediatrics, presented her findings on boys with Duchenne muscular dystrophy. Her findings suggest that bisphosphonate treatment partially stabilized bone structural decline, however ambulation had the greatest effect on bone strength. Dr. Saija Kontulainen, a professor at the U of S College of Kinesiology, presented preliminary findings of ongoing study assessing bone and muscle health in children with autism spectrum disorder and related animal-assisted exercise-intervention at the U of S.



Dr. Frank Rauch, professor of Pediatrics at McGill University presenting Anthony Kehrig (left) with the Young Investigator's Award at the International Workshop on Musculoskeletal and Neuronal Interactions in Montreal, QC.

Through attending this international conference and receiving the Young Investigators' Award, this conference benefited both us and the U of S by providing us with a stage to present our research efforts and opening up the potential for future collaboration and training opportunities with many other leading research specialists. This experience would not be possible without the travel funding provided to the students through The Bob and Rita Mirwald Travel Scholarship Award, The International Student Study Abroad Centre U of S Student Travel Award, Dr. Saija Kontulainen, the College of Kinesiology, Dr. James Johnston, and the College of Engineering. Conference proceedings will be published in an open-access journal (Journal of Musculoskeletal and Neuronal Interactions) in December 2017 and are already made available online at: http://www.ismni.org/jmni/accepted/jmni_aa_IWMNI2017_Proceedings.pdf

Coming Events

DEC MON 4	Pediatrics Division of Research Mtg 11am-12pm E-4254 Health Sciences	DEC MON 4	Research Café: Addressing Unconscious Bias 4:00-5:30pm Louis Loft
DEC THU 7	Methicillin-resistant Staphylococcus aureus (MRSA) Drs. Athena McConnell & Breann Kozun Pediatric Grand Rounds 11am-12pm East Lecture Thtr	DEC THU 7	SHRF Sante Awards Evening 5:00-8:30pm TCU Place RSVP at www.shrf.ca/Events
DEC THU 14	Holiday Rounds Dr. Morgan Hewitt Pediatric Grand Rounds 11am-12pm East Lecture Thtr	JAN THU 11	Bullet-Proof Your Diagnosis Dr. Tino Piscione Pediatric Grand Rounds 11am-12pm East Lecture Thtr
JAN THU 18	Childhood Poverty Dr. Barbara Fitzgerald Pediatric Grand Rounds 11am-12pm East Lecture Thtr	JAN THU 25	Pediatric Urology Dr. Elke Mau Pediatric Grand Rounds 11am-12pm East Lecture Thtr

Child Health Research Writing Group: We invite anyone who wants to get out of their office and have a space to come and get some writing done (manuscripts, grants, etc). This idea seems to work well as being in the company of other people who are writing can help minimize distractions and improve focus.

Contact erin.loose@usask.ca for information on dates and location.

We would appreciate your opinion about the Department of Pediatrics Research Report and suggestions for future editions.

Please complete a brief survey at:

<https://www.surveymonkey.com/s/NQVV6SB>.

Thank you!

Recent Publications & Presentations from U of S Child Health Researchers

- Elliot V, Hagel L, Dosman JA, Rana M, **Lawson J**, Marlena B, Trask C, Pickett W. *Resilience of farm women working the third shift*. J Agromedicine. 2017 [Epub ahead of print].
- **Engler-Stringer R**, Schaefer J, Ridalls T, **Muhajarine N**. *Lessons learned from a food environment intervention study: recruitment and retention of participants in disadvantaged urban inner-city neighborhoods*. Health Educ Behav. 2017; [Epub ahead of print].
- Gunton A, **Hansen G**, Schellenberg KL. *Hospitalization for patients with amyotrophic lateral sclerosis in Saskatoon, Canada*. Amyotroph Lateral Scler and Frontotemporal Degener. 2017; [Epub ahead of print].
- **Holt T**, Filler G. *Is it time for a multi-specialty approach to cardio-renal dysfunction in children with cyanotic congenital heart disease?* Pediatr Nephrol. 2017; [Epub ahead of print].
- Pylypow J, **Quinn D**, Duncan D, Balbuena L. *A measure of emotional regulation and irritability in children and adolescents. the clinical evaluation of emotional regulation-9*. J Atten Disord. 2017; [Epub ahead of print].
- **Risling T**, Martinez J, Young J, Thorp-Frosie N. *Evaluating patient empowerment in association with ehealth technology: scoping review*. J Med Internet Res. 2017;19:e329.
- **Spurr S**, **Bally J**, Bullin C, Trinder K. *Type 2 diabetes in Canadian Aboriginal adolescents: risk factors and prevalence*. J Pediatr Nurs. 2017;36:111-117.
- Ward S, Bélanger M, Donovan D, **Vatanparast H**, **Engler-Stringer R**, Leis A, Carrier N. *Lunch is ready...but not healthy: an analysis of lunches served in childcare centres in two Canadian provinces*. Can J Public Health; 2017;108:e342-347.

Congratulations!

Congratulations to Stephanie Fusnik, a PhD Candidate in the College of Kinesiology, supervised by Dr. Corey Tomczak, on winning the Richard Rowe Research Prize at the Canadian Cardiovascular Congress, held in Vancouver, on October 21-24, 2017. From the Canadian Cardiovascular Society: "The award is presented to an individual for outstanding research in heart disease in children undertaken during training. The colleagues and friends of Dick Rowe established this prize as a tribute to his many contributions to pediatric cardiology. While his achievements were international, he has a special place in the development of pediatric cardiology in Canada, and it is hoped that this prize will help to foster the ideals to which he aspired".



Stephanie Fusnik, left, is a PhD Candidate in the College of Kinesiology, supervised by Dr. Corey Tomczak, right.

Stephanie Fusnik, Tim Bradley, Ashok Kakadekar, Scott Pharis, Charissa Pockett, Scotty Butcher, Corey Tomczak. *Blunted exercise pressor reflex in children with hypoplastic left heart syndrome after the Fontan operation.* Can J Card. 2017;33(10):S97.

Winner of the Richard Rowe Research Prize – Best Trainee Research Presentation (\$500 Prize). Moderated Poster Presentation. Canadian Cardiovascular Congress, Canadian Cardiovascular Society, Vancouver, British Columbia, Canada.

Congratulations as well to the following U of S, second year medical students for presenting their summer research projects at The College of Medicine, Dean's Project poster day, in the Pediatrics category, held on October 13, 2017.

Nicole Pendleton, Tim Bradley, Prosanta Mondal, Roland Dyck, Mark Inman, Munier Nour. *Retrospective review of the early clinical course of childhood-onset type 2 diabetes in Saskatchewan.*

1st Place - Pediatrics Poster Presentations.

College of Medicine Vice-Dean of Research's Letter of Excellence.

Jasmine McGuin, Jocelyn Martel, Kristine Mytopher, Lara Wesson, Adewumi Adenlawo, George Carson, Ashok Kakadekar, Tim Bradley. *A 10-year retrospective review of fetal vs. postnatal ECHO diagnosis of congenital heart disease in Saskatchewan.*

2nd Place - Pediatrics Poster Presentations.

Winner of McManus Cardiovascular Research Career Development Award (\$2,000 Prize).

Rachel Guo, Kieran Johnson, Kristin Urmsen. *Outcomes of Paediatric Tonsillectomy: does postoperative admission increase the number of interventions for adverse events?*

3rd Place - Pediatrics Poster Presentations.

Preston Njaa Corey Tomczak, Marta Erlandson, Kristi Wright, Ashok Kakadekar, Scott Pharis, Charissa Pockett, Tim Bradley. *Determining eligibility for the Children's Healthy-Heart and Activity Monitoring Program in Saskatchewan (CHAMPS).*

Erik Lip-Yiang, Michelle Keir, Erik Pausjenssen, Ashok Kakadekar, Tim Bradley. *A retrospective review of the disposition of adolescents followed in Pediatric Cardiology Outpatients in Saskatchewan.*

Astrid Lang, Marta Erlandson, Corey Tomczak, Kristi Wright, Ashok Kakadekar, Scott Pharis, Charissa Pockett, Tim Bradley. *Assessing the Dietary Habits of Children with Congenital Heart Disease in Saskatchewan.*

Resident Research Project Opportunities

"Sex and gender influences on pediatric research participation"

Study format: Survey

Contact: Dr. Erin Prosser-Loose, erin.loose@usask.ca

contact us

For more information about The Department of Pediatrics Research, SPRING, or to contribute content to The Department of Pediatrics Research Report, please contact:

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Next submission deadline is Jan 12th, 2017!

Online version of the newsletter:
[www.medicine.usask.ca/
pediatrics/research/newsletter](http://www.medicine.usask.ca/pediatrics/research/newsletter)



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Dr. Mateen Raazi

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research. He feels that meaningful outcomes based research has sadly been relatively neglected whereas it has the most potential to influence clinical practice, allocation of precious research resources, policy and decision making at all levels, and patient outcomes. Dr. Raazi would also like to see policies and procedures in place for even busy clinicians to participate in research without an undue burden on other areas of practice and career. He also feels that research initiatives aimed at preventative strategies in health are often neglected with an overdue emphasis on those dealing with disease management.

Dr. Mateen Raazi is an Associate Professor in the Department of Anesthesiology, College of Medicine, University of Saskatchewan.

The Children's Health Research Trust Fund (CHRTF) was established in 1983 to help raise funds to support child health research at the University of Saskatchewan. As all donated funds are endowed, the CHRTF has continued to grow to become an important partner in helping advance research in the Department of Pediatrics. For further information about the CHRTF: <http://www.medicine.usask.ca/pediatrics/research/CHRTF>. To **Donate** to the CHRTF: <http://give.usask.ca/online/chrtf.php>

