

September 2020

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## Getting to the Marrow of the Matter: How Dr. Nour's foundational approach to understanding bone development in children exemplifies USask's research ethos

**Dr. Munier Nour** completed his medical degree from the University of Calgary, Residency in Pediatrics from the University of Queens, and Fellowship in Endocrinology at Alberta Children's Hospital. He moved across the prairies to Saskatoon in 2014 where he is a Pediatric Endocrinologist and an Assistant Professor with the Department of Pediatrics. His primary research focus is in pediatric bone health Diabetes Mellitus.

Alterations in bone development in children with Type 1 Diabetes (DM1) is a relatively newly recognized issue, with recent studies in this area showing that individuals with DM1 have an alarming 14% greater fracture risk



in childhood and 40% greater fracture risk in older age. Greater fracture risk in older age is due to the weakened bones and increased risk of falls due to DM1-related pathologies including neuropathy. Commonly, the onset of DM1 occurs at the critical time of skeletal growth period in late childhood and early puberty. Although it has been reported that individuals with DM1 are at higher risk for deficits in bone

strength development the “why” remains unclear.

Both DM1 and osteoporotic fractures are major health concerns that can impact quality of life and longevity in older individuals. The economic cost to both the individual and society is also a driving factor in Canada and worldwide. These concerns are particularly relevant to the health of Saskatchewan residents due to an estimated 49% increase in diabetes prevalence (including Type 1 and Type 2 Diabetes) and projected \$113 million increase in related health care costs over the next decade. Before developing evidence-based preventive and therapeutic interventions, research is needed to determine why this

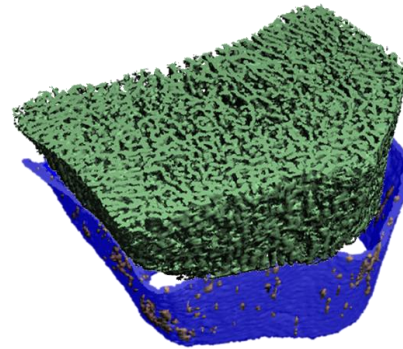
Nour, continued from page 1...

occurs and what are the contributing factors in children and youth with DM1.

Dr. Munier Nour, Co-Principal Investigator in collaboration with Dr. Saija Kontulainen from the College of Kinesiology and the Bone Strength Development Study (BSDS) team have developed a study that can hopefully answer these questions. The BSDS assesses bone health development in children with Type 1 Diabetes comparing them with typically developing children.

This mixed longitudinal cohort study will look at the underpinning mechanism of the detriment to bone development. Hormonal, biochemical, nutritional, muscle strength and physical activity measures will be assessed to examine influence on bone health development. Bone and muscle health measurements will be assessed through Dual-energy X-ray absorptiometry (DXA), peripheral quantitative CT (pQCT) and high resolution pQCT (HR-pQCT). The project will provide prospective data of bone strength and micro-architectural development in children with DM1. Together with evidence of factors associated with bone strength changes, this research will offer important, currently unavailable pilot data required to pursue funding for large longitudinal and intervention studies. This in turn could ultimately guide development of new interventions and strategies and direct clinical practice guidelines focused on children and youth with DM1.

The University of Saskatchewan is uniquely qualified among Canadian universities to conduct this research, in that it has all health-related research disciplines situated on the same campus. This geographical proximity fosters and facilitates inter-disciplinary collaborations that cannot be easily matched in other jurisdictions. Dr. Nour with his collaborations with the College of Kinesiology embodies the interdisciplinary mindset that USask values. A culture of collaboration in Saskatchewan and the physical proximity of an array of programs, making multidisciplinary affiliations easy, productive, and preferred. Dr Nour and his collaborators stratified approach to understanding bone development will improve the health of children with DM1 to help them reach their genetic potential for building strong bones during growth, which is arguably one of the most effective public health strategies for bone fragility prevention.



Segmented image from High Resolution Peripheral Quantitative CT (HR-pQCT) scan of participant's distal radius. The green region demonstrates the trabecular bone. The blue region is cortical bone with cortical porosity shown in grey.



Photo from USask article

<https://news.usask.ca/articles/colleges/2020/usask-kinesiology-and-medicine-researchers-examine-how-diabetes-affects-bone-strength.php>

Special Thanks to Dr. Munier Nour and Dr. Saija Kontulainen for providing content for this article.

Drs. Nour and Kontulainen would also like to acknowledge all BSDS team members, particularly: Yuwen Zheng, Anthony Kehrig, Dr. Mark Inman, Dr. Suraj Unniappan, Dr. Joel Lanovaz, Dr. JD Johnston, Dr. Adam Baxter-Jones, Dr. Nazeem Muhajarine, and Dr. Hassan Vatanparast.

## Congratulations to all the winners from the 2020 Virtual Child Health Research Trainee Day

Lightening Rounds Presentations (2 mins)				
Category	Name	Title	Authors	Position
Undergrad	Devon Lieffers	Is bone health compromised in children with congenital heart defects and children with heart transplants?	Devon Lieffers, Matthew Chapelski, Kristi D. Wright, Charissa Pockett, Timothy J. Bradley, Scott Pharis, Corey R. Tomczak, Marta C. Erlandson.	1 <sup>st</sup>
	Matthew Chapelski	The Effect of a 12-week Physical Activity Intervention on the Body Composition of Children with Congenital Heart Disease	Matthew Chapelski, Ashley Libke, Dana S. Lahti, Kristi D. Wright, Charissa Pockett, Timothy J. Bradley, Scott Pharis, Corey R. Tomczak, Marta C. Erlandson	2 <sup>nd</sup>
Resident	Nicole Bechard	QI Project: Use of antibiotics for community acquired pneumonia inpatient pediatric ward	Nicole Bechard, Ayisha Kurji	1 <sup>st</sup>
	Katherine Backman	Transition to adult diabetes care: Perspectives from adolescents with type 1 diabetes and their caregivers Sustainable Development Goal: Good health and well-being	Katherine Backman, Mark Inman, Rhonda Bryce, Rayzel Shulman	2 <sup>nd</sup>
Full Presentations (10 mins)				
PhD	Yuwen Zheng	Lower bone area, content and strength in children and youth with type 1 diabetes	Yuwen Zheng, M. Kehrig, M. Nour, S. Kontulainen	1 <sup>st</sup>
	Rostami Haji Abadi Mahdi	Bone health in children and youth with autism spectrum disorder: A systemic review and meta-analysis	Rostami Haji Abadi Mahdi, Saija Kontulainen	2 <sup>nd</sup>
Undergrad	Chloe Johnson	Comparing aortic growth rates in children with bicuspid aortic valve and conotruncal congenital heart defects	Chloe Johnson, Erin Barbour-Tuck, Gitanjali Mansukhani, Scott Pharis, Charissa Pockett, Tim Bradley	1 <sup>st</sup>
	Megan Gallagher	Effects of congenital heart disease sub-type on growth trajectories in early childhood	Megan Gallagher, Erin Barbour-Tuck, Gitanjali Mansukhani, Scott Pharis, Charissa Pockett, Tim Bradley	2 <sup>nd</sup>
Knowledge Translation	Seyara Shwetz	The TREKK Saskatchewan Roadshow: A novel approach to disseminating pediatric emergency medicine treatment tools in rural, regional, and remote Saskatchewan	Seyara Shwetz, Vicki Cattell, Robert Carey, Gloria Yoo, Maple Liu, James Stempien	1 <sup>st</sup>
Resident	Gloria Yoo	CT Practice Standards for Pediatric TBI	Gloria Yoo, A. Leach, R. Woods, T. Holt, G. Hansen	1 <sup>st</sup>
	Kaitlyn Lopushinsky	Case Report of Intrauterine-acquired Congenital HSV Infection	Kaitlyn Lopushinsky, Andrei Harabor, Jaya Bodani	2 <sup>nd</sup>

## Global Health Research continues to thrive during pandemic times

**Dr. Ron Siemens** and his international team didn't let a global pandemic get in the way of formally signing the Project Frango contract. With the help of zoom technology and e-signatures the team members from Saskatchewan, Mozambique, Quebec, and Brazil came together on August 5, 2020 to officiate the project. Project Frango will create a training center for young families to learn the art of managing a chicken farm so that they can create their own livelihood. During their training period these families will be immersed in family health education. This innovative program aims to improve community income, family equality, food security, nutritional health for children, and the ability for families to engage in future planning and goal setting.

This project was recently awarded \$29,000 from the Global Community Service Fund, USask. The project has secured \$235,000 in the bank or pledged. The team in Mozambique has begun the process of choosing a board of directors and securing title to the land. To stay up to date on Project Frango's progress please check out their website!

<http://projectfrango.com/>



### Did you know?

The [Clinical Research Support Unit](#) provides multi-faceted research assistance to all faculty members, residents, students, and researchers within the College of Medicine. Investigators can access support for study design, sample size/power calculation, data management, analysis, and manuscript revision. Requests to review funding applications are also welcome. Support is provided by doctoral-level biostatisticians and biostatistical graduate students—all at zero cost.

### Coming Events

<b>Oct 1</b>	<a href="#">Pediatric Grand Rounds – Dr. Chan</a>
<b>Oct 15</b>	<a href="#">Making the links in Canada and Africa: Community engagement to improve maternal and child health</a>
<b>Oct 15</b>	<a href="#">Pediatric Grand Rounds – Dr. Ron Dagan</a>
<b>Oct 22</b>	<a href="#">Pediatric Grand Rounds – Dr. Munier Nour</a>
<b>Oct 24</b>	<a href="#">Pain and Therapeutics Virtual Conference 2020</a>
<b>Nov 12</b>	<a href="#">Pediatric Grand Rounds – Dr. Daphne Yau</a>
<b>Nov 16-18</b>	<a href="#">Saskatchewan Health Research Showcase</a>
<b>Nov 16-20</b>	<a href="#">Children's Healthcare Canada Conference</a>



**TORONTO, September 10, 2020** – A new Canada-wide collaboration will develop a research ethics review process to facilitate efficient multi-site pediatric studies. Based at Queen’s University and led by Clinical Trials Ontario (CTO) and the Maternal Infant Child and Youth Research Network (MICYRN), the Canadian Collaboration for Child Health: Efficiency and Excellence in the Ethics Review of Research (CHEER) aims to improve child health in Canada by enhancing and expediting child health research.



CHEER is supported by \$2.5 million in funding from the Canadian Institutes of Health Research (CIHR), by the CIHR Institute of Human Development, Child and Youth Health and the CIHR Institute of Genetics.

Canada is a world leader in child health research, but investigators developing multi-site research studies often encounter challenges with gaining Research Ethics Board (REB) approval across multiple provinces. This can delay research, increasing the costs and timelines of conducting studies and creating setbacks for patients and families who are waiting for new evidence and treatments. To address these challenges, CHEER is building a web-based system that researchers and REBs can use to enable a single REB review for studies conducted across the country.

“Streamlined research ethics review plays a vital role in conducting successful, efficient clinical research,” says Susan Marlin, President and CEO of CTO and Nominated Principal Investigator for CHEER. “By developing a Canada-wide approach to ethics review, we can respond more quickly to emerging health crises, strengthen our role as a global leader in pediatric research and, most importantly, move research forward more efficiently to improve child health in Canada and beyond.”

In collaboration with investigators, REBs, patients and families, and other organizations, CHEER will also establish a program to assess REBs for the streamlined ethics review process and develop educational programs to support high-quality, consistent and efficient REB reviews.

“An effective education component is key to ensuring research teams, trainees, and REB members are informed of new systems and processes in a timely manner,” says Thierry Lacaze-Masmonteil, Scientific Director of MICYRN and Principal Investigator for CHEER. “Through all phases of the project, we will engage researchers, sub-specialty networks, and patients and their families to ensure information that can help improve child health in Canada is accessible, effective and engaging.” The Queen’s University, Faculty of Health Sciences, Office for Professional Development and Educational Scholarship will play a key role in supporting the educational programming for CHEER.

“Across the country, Canada is home to a strong children’s health research community,” says Dr. Christine Chambers, Scientific Director of the CIHR Institute of Human Development, Child and Youth Health. “Through collaboration and knowledge translation, the CHEER initiative will help our community work together effectively and expedite research that improves the health and development of mothers, infants, children, youth, and families in Canada and throughout the world.”

“We are thrilled to see the breadth of the scope of this initiative, and the key role played by patients’ representatives,” says Christopher McMaster, Scientific Director of CIHR Institute of Genetics. “We are looking forward to seeing the outcomes of this project, as they will be a key factor in supporting our efforts – especially those supporting research on inherited diseases, which represents by far the highest burden on our children’s health.”

CHEER focuses on child health research, but a broader vision is baked into the initiative. “We hope that this will be a first step in developing a single research ethics review process for any multi-site health research study conducted across Canada,” says Richard Carpentier, Principal Investigator for CHEER, Associate Professor in the Department of Medicine at the University of Sherbrooke, and Chair of the Hôpital Montfort REB. “As we move forward, we will consider opportunities to expand this program across all areas of study to ultimately improve the environment for conducting health research in Canada.”

More information on the CHEER project can be found on its newly launched website: [cheerchildhealth.ca](http://cheerchildhealth.ca).

## 2020 May - August Publications

- Ajamian F, Ilarraza R, Wu Y, Morris K, Odemuyiwa SO, Moqbel R, **Adamko DJ**. [CCL5 persists in RSV stocks following sucrose-gradient purification](#)
- Barbour-Tuck B**, Boyes N, Tomczak CR, Lahti D, Baril C, **Pockett C**, **Runalls S**, **Kakadekar A**, **Pharis S**, **Bradley TJ**, Wright KD, Erlandson MC, [A Cardiovascular Disease Risk Factor in Children With Congenital Heart Disease: Unmasking Elevated Waist Circumference - A CHAMPS Study CHAMPS: Children's Healthy-Heart Activity Monitoring Program in Saskatchewan](#)
- Català A, Ali SS, Cuvelier GDE, Steele M, Klaassen RJ, Fernandez CV, Pastore YD, Abish S, Rayar M, Jardine L, Breakey VR, Brossard J, **Sinha R**, Silva M, Goodyear L, Lipton JH, Michon B, Corriveau-Bourque C, Sung L, Lauhasurayotin S, Zlateska B, Cada M, Dror Y. [Androgen therapy in inherited bone marrow failure syndromes: analysis from the Canadian Inherited Marrow Failure Registry](#).
- DiLabio J, Zwicker JG, Sherlock R, **Daspal S**, Shah PS, Shah V; Canadian Neonatal Network and Canadian Neonatal Follow-Up Network. [Maternal age and long-term neurodevelopmental outcomes of preterm infants < 29 weeks gestational age](#).
- Gordon L, Teunissen PW, Jindal-Snape D, Bates J, Rees CE, Westerman M, **Sinha R**, van Dijk A. [An international study of trainee-trained transitions: Introducing the transition-to-trained-doctor \(T3D\) model](#).
- Harting I, Al-Saady M, Krägeloh-Mann I, Bley A, Hempel M, Bierhals T, Karch S, Moog U, Bernard G, **Huntsman R**, van Spaendonk RML, Vreeburg M, Rodríguez-Palmero A, Pujol A, van der Knaap MS, Pouwels PJW, Wolf NI. [POLR3A variants with striatal involvement and extrapyramidal movement disorder](#).
- Isayama T, Kusuda S, Reichman B, Lee SK, Lehtonen L, Norman M, Adams M, Bassler D, Helenius K, Hakansson S, Yang J, Jain A, Shah PS; **International Network for Evaluating Outcomes of Neonates (iNeo) Investigators**. [Neonatal Intensive Care Unit-Level Patent Ductus Arteriosus Treatment Rates and Outcomes in Infants Born Extremely Preterm](#).
- Holbird S**, **Holt T**, **Shaw A**, **Hansen G**. [Noninvasive ventilation for pediatric interfacility transports: a retrospective study](#).
- Holt T**, **Parker K**, **Shaw A**, **Hansen G**. [Serial Clinical Scoring to Assess Transported Pediatric Patients](#).
- Khan A, Lim H, **Almubarak S**. [Importance of Prompt Diagnosis in Pediatric Epilepsy Outcomes](#)
- Oluwole O**, Rennie DC, Lawson JA. [Clinical and complete remission of asthma among schoolchildren](#)
- Oluwole O**, Rennie DC, Goodridge D, Blackburn D, Penz E, Litzenberger T, Cockcroft D, Lawson JA. [Urban-rural Differences in Healthcare Utilization and Prescription Filling for Childhood Asthma](#)
- Oluwole O**, Rennie DC, Afanasieva A, Lawson JA. [Personal and early life factors associated with new-onset asthma, remission, and persistence of asthma in a 2-year follow-up of schoolchildren](#)
- Oluwole O**, Rennie DC, Goodridge D, Blackburn D, Litzenberger T, Penz E, Lawson JA. [The course of asthma: A population-based 10-year study examining asthma remission in children diagnosed with asthma in preschool](#)
- Shafey A, Bashir RA, Shah P, Synnes A, Yang J, Kelly EN; **Canadian Neonatal Network and Canadian Neonatal Follow-Up Network Investigators**. [Outcomes and resource usage of infants born at < 25 weeks gestation in Canada](#).
- Shah PS, Rau S, Yoon EW, Alvaro R, da Silva O, Makary H, Claveau M, Lee SK; **Canadian Neonatal Network (CNN) Investigators**. [Actuarial Survival Based on Gestational Age in Days at Birth for Infants Born at < 26 Weeks of Gestation](#).
- Stinson JN, Lalloo C, Hundert AS, Campillo S, Cellucci T, Dancey P, Duffy C, Ellsworth J, Feldman BM, Huber AM, Johnson N, Jong G, Oen K, **Rosenberg AM**, Shiff NJ, Spiegel L, Tse SML, Tucker L, Victor JC. [Teens Taking Charge: A Randomized Controlled Trial of a Web-Based Self-Management Program With Telephone Support for Adolescents With Juvenile Idiopathic Arthritis](#).
- Tam J, Tran D, Bettinger JA, Moore D, Sauvé L, Jadavji T, **Tan B**, Vaudry W, Halperin SA, Top KA, the Canadian Immunization Monitoring Program Active Investigators. [Review of pediatric encephalitis and encephalopathy cases following immunization reported to the Canadian Immunization Monitoring Program Active \(IMPACT\) from 1992 to 2012](#)
- Top K A, Macartney K, Bettinger JA, **Tan B**, Blyth CC, Marshall HS, Vaudry W, Halperin SA, McIntyre P, on behalf of the IMPACT and PAEDS investigators. [Active surveillance of acute paediatric hospitalisations demonstrates the impact of vaccination programmes and informs vaccine policy in Canada and Australia](#)
- Worth C, Hashmi LA, **Yau D**, Salomon-Estebanez M, Ruiz DP, Hall C, O'Shea E, Stokes H, Foster P, Flanagan SE, Cosgrove KE, Dunne MJ, Banerjee I. [Longitudinal Auxological recovery in a cohort of children with Hyperinsulinaemic Hypoglycaemia](#).
- Yau D**. [Congenital hyperinsulinism due to mutations in HNF1A](#)

Innovating for Maternal and Child Health in Africa (IMCHA) / Innovation pour la santé des femmes et des enfants d'Afrique (ISMEA)

## Making the links in Canada and Africa:

Community engagement to improve maternal and child health

## Établir les liens au Canada et en Afrique :

L'engagement communautaire pour améliorer la santé maternelle et infantile



Join **Dr. Ron Siemens** as he co-hosts on behalf of **USask** with **IDRC/Global Affairs Canada/CIHR** for an opportunity to reflect on lessons learned through IMCHA and draw parallels to community engagement in Canada. Research teams in the Innovating for Maternal and Child Health in Africa (IMCHA) initiative have been working with communities to empower them to become agents of change and increase access to health information and use of services.

**REGISTER NOW**

Oct 15, 2020 8 am – 11am (SK time) FREE Virtual Conference

### Canadian Child Health Clinician Scientist Program FREE WEBINAR SERIES

Partnered with Alberta Children’s Health Research Institute (ACHRI) and Women and Children Health Research Institute (WCHRI), [Canadian Child Health Clinician Scientist Program \(CCHCSP\)](#) is excited to offer a series of research training sessions. All are welcome, trainees of any level or discipline and faculty. To register: email [ruth.fermin@ahs.ca](mailto:ruth.fermin@ahs.ca)

Date	Time	Session
October 13 2020, 2020	12pm – 1:30pm	<b>Wellness of the Clinician Scientist</b>
November 17, 2020	12pm- 1:30pm	<b>Navigating Budget</b>
December 15, 2020	12pm-1:30pm	<b>Paper Writing</b>

## Congratulations!



Congrats to **Dr. Richard Huntsman** who was selected as co-chair of Health Canada’s Scientific Advisory Committee on Health Products Containing Cannabis. This recognition is in part of the work he has been intimately involved in at USask. This gives USask and the Department of Pediatrics a seat at the table when setting national cannabis policies.

## Congratulations to Recent Pediatric Awardees!

### Cystic Fibrosis Canada Accelerating Clinical Trials Network (CF CanACT) - \$150,000

Saskatchewan Pediatric and Adult Cystic Fibrosis Clinics

Dr. Martha McKinney and Dr. Julian Tam

### Jim Pattison Children's Hospital Found Grant \$120,000

Oral Health as a Determinant of Childhood Arthritis Occurrence and Outcomes: Towards Improving Care of Childhood Arthritis by Optimizing Oral Health

Alan Rosenberg, Pediatrics, Principal Investigator; Keith Da Silva, Dentistry, Co-Applicant; Mehul Jariwala, Pediatrics, Co-Principal Applicant; Silvana Papagerakis, Medicine, Co-Applicant; Petros Papagerakis, Dentistry, Co-Principal Applicant; Anne Cherney, Parent representative, Co-Applicant; Walter Siqueira, Dentistry, Co-Principal Applicant; Janet Hill, Veterinary Medicine, Co-Applicant; Lina Marin, Dentistry, Graduate Student, Co-Applicant; Lynn Weber, Veterinary Medicine, Co-Applicant; Caroline Tait, Psychiatry/Indigenous Mentoring Program, Co-Applicant; Christopher Eskiw, Agriculture and Biosciences, Co-Applicant

### Community Engagement Conference Award, IDRC - \$26,100 & OVDR Virtual Conference Award - \$500

Making the links in Canada and Africa: Community engagement to improve maternal and child health

Ron Siemens

### SHRF Partnership Funding - \$22,280

CONCOR-KIDS

Rupeena Purewal, PI; Roona Sinha, Co-A; Tanya Holt, Co-A; Krista Baerg, Co-A; Lannae Strueby, Co-A; Daniel Au-Yeung, Co-A; Oksana Prokopchuk-Gauk, Co-A

### 2020 Rapid Response COVID-19 Research Funding, USask OVDR & RRC \$10,000

CONCOR-KIDS

Rupeena Purewal, PI; Roona Sinha, Co-A; Tanya Holt, Co-A; Krista Baerg, Co-A; Lannae Strueby, Co-A; Daniel Au-Yeung, Co-A; Oksana Prokopchuk-Gauk, Co-A

High mobility box 1 protein in pediatric coronavirus disease

Alan Rosenberg, PI

CATCO-Kids Saskatchewan

Krista Baerg, PI

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 part in helping advance research in the Department of Pediatrics. For further information about the CHRTF and to donate:

<https://donate.usask.ca/online/chrtf.php>



#### 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!



#### Contact us

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