



Department of Pediatrics Research Report

January 2015



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The Stress and Wellness Lab: Studying Child Trauma Through the Parental Experience

Dr. Jordan Cummings

Unfortunately, children experience interpersonal trauma at disturbingly high rates. According to the most recent Canadian Incidence Study of Reported Child Abuse and Neglect, 17 out of 1000 children annually are substantiated or suspected victims of sexual abuse, physical abuse, emotional/psychological abuse, or witnessing domestic violence. Child victims of trauma are at risk for a number of negative outcomes, both in childhood and adulthood such as depression, suicidality, posttraumatic stress disorder, substance abuse, revictimization, and intimate partner violence. Early exposure to violence and childhood adversity is even associated with neurobiological changes associated with aging, early mortality, and chronic inflammation.

Parents of child trauma victims serve as important modulators of child responses to trauma, and have a strong positive and negative impact on child functioning after trauma. For example, when mothers are supportive following a child's disclosure of sexual abuse, children experience less distress and fewer psychological symptoms. In contrast, perceived parental rejection or guilt for the trauma has detrimental influences on a child's post-trauma functioning. Some researchers believe that support from caregivers is the single most important determinant of children's resilience following interpersonal trauma.

Although researchers understand that trauma has a negative impact on child victims, and that parents have an important

influence on children's recovery from trauma, we know very little about how parents themselves are impacted by their child's trauma. Furthermore, only a handful of research studies examine how parenting practices, communication with children, and discipline choices might be impacted after child trauma. Understanding this experience is one of the main research objectives of work in the Stress and Wellness Lab at the University of Saskatchewan. We are currently examining parenting experiences at two levels: First, we are collecting stories from parents themselves about their experiences with their children who have experienced trauma. Second, we are examining how others view non-offending parents of child trauma and the stigma and blame attached to this experience, through experiments and survey studies. Understanding these processes has important implications for treatment of child trauma victims and how

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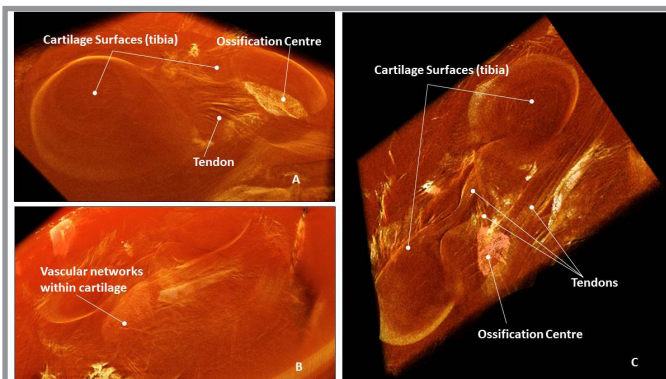


Image of Interest

3D reconstructed images of a piglet stifle joint captured by diffraction enhanced CT imaging using a synchrotron light source. The images show joint structures in fine detail. In panel B a network of blood vessels is seen within cartilage, a feature of growing but not mature joints. (Rhoades G, Belev G, Chapman D., Rosenberg AM)

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to include parents in treatment and meet parental needs.

This project is part of my broader program of research examining the bidirectional relations between interpersonal relationships and psychopathology. I study this connection in multiple types of relationships (e.g., parent-child dyads, friendships, and the therapeutic alliance between clients and therapists) and in multiple forms of mental health concerns including child trauma, social anxiety disorder, and depression.

Part of my research is conducted in the VideoTherapy Analysis Lab (ViTAL), a Canadian Foundation for Innovation funded therapy research lab that is part of the Social Science Research Lab complex in the College of Arts and Science. The ViTAL is equipped with multi-angle high-resolution cameras that allow us to capture social

interactions in real-time, such as the work between a therapist and his or her client. For more information on the SSRL and the ViTAL please see our website: <http://ssrl.usask.ca/vital/>

Participation in our research project is open to any nonoffending parents of a child who has experienced interpersonal trauma such as sexual abuse, physical abuse, neglect, psychological abuse, traumatic grief, or witnessing domestic or community violence. Our interviews generally take 1-3 hours and participants are reimbursed for their time. For more information please feel free to call the lab at (306) 966-6731 or see our website at www.stressandwellnesslab.com.

Dr. Jorden Cummings is an Assistant Professor in the Department of Psychology, College of Arts and Science, University of Saskatchewan

Featured Child Health Researcher

Dr. Julia Boughner

The tempo of tooth development is a window into childhood growth and health status among contemporary human populations, and gives unique insight into how our fossil relations grew up and, thus, how humans have evolved. Indeed, we have a distinctly protracted childhood compared to our closest-related species, living and extinct.



Ever since Dr. Julia Boughner declared, loudly, in her University of Toronto undergraduate human osteology class that, "Wow - teeth are really complex. I'm never studying *those* again!", her scientific fate was cast. Particularly fascinated by the interplay between human biology (teeth and jaws) and human culture (cutting and cooking foods), Dr. Boughner boarded a plane to study the evolutionary anatomy of ape and monkey teeth and jaws for her PhD degree at University College London, UK. On returning to Canada, Dr. Boughner trained as a postdoctoral fellow at the Universities of British Columbia and Calgary, wielding chicken, snake and mouse experimental model systems to better understand in humans the developmental genetics of healthy craniodental growth and congenital facial malformations.

As Dr. Boughner built her career as an evolutionary developmental anthropologist, she accrued expertise in 2D and 3D imaging, statistical shape analysis, and classic as well as contemporary molecular and

histological lab techniques. In 2010, she established her independent NSERC- and CFI-funded "Evo-Devo" research laboratory at the University of Saskatchewan. Her team works to unravel the processes that enable teeth and jaws to "fit" together as they develop during a child's lifetime, and evolve across primate species.

One of her MSc students, Denver Marchiori, just completed his project on causes of "wisdom tooth" impaction (where third molars improperly fit the jawbone), a very common oral health concern among teens and young adults. Denver is now expanding his molar impaction research with the support of a U of Sask Dean's PhD Scholarship. Muhammad Raj, another MSc student supervised by Dr. Boughner, just finished his investigation of genes that her group has, for the first time, linked to tooth formation. Also, over the past four years, a cache of skilled and dedicated undergraduate students has helped advance her laboratory's novel work imaging and quantifying craniodental growth processes using a "toothless" mouse model.

Dr. Boughner collaborates locally with colleagues in the Colleges of Medicine and Dentistry and at the Canadian Light Source, as well as internationally with researchers at the Universities of Sheffield (UK) and Valencia (Spain), and Howard and Harvard Universities (USA). Their overarching aim is to build fundamental knowledge not only to help uncover human origins and characterize healthy childhood growth processes, but also to develop more effective treatments and, ideally, preventions of widespread orofacial health concerns.

Dr. Julia Boughner is an Assistant Professor in the Department of Anatomy and Cell Biology, College of Medicine, University of Saskatchewan

Our Partners:

The Saskatoon Hub City Optimist Club

The Saskatoon Hub City Optimist Club continues to be a strong supporter of child health research in the Department of Pediatrics. Optimist Clubs in Saskatchewan, led by Saskatoon's Hub City Optimist Club, established the Optimist Children's Research Fund in 2010 and since that time have contributed approximately \$25,000 in support of pediatric research. The contributed funds are endowed and administered under the auspices of the Children's Health Research Trust Fund. As the funds accumulate we anticipate the Optimist Club donations will help to translate research discoveries into disease preventative strategies for Saskatchewan children.



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

MITACS: Canadian Training and Research Programs

Robyn Dugas, Programs Communications Coordinator

Mitacs is a national, not-for-profit organization that delivers research and training programs across Canada. We work with 60 Canadian universities, including the University of Saskatchewan, thousands of companies, and federal and provincial governments. Our four main programs are Accelerate, Elevate, Globalink, and Step.

Mitacs Accelerate supports research-based internships between graduate students or postdoctoral fellows and a partner organization. It starts with a four-month internship in which interns divide their time between their industry partner and faculty supervisor.

Accelerate can be scaled up to include multiple researchers, universities, and partner organizations. Projects can also span multiple years and applications are accepted at any time throughout the year. Each four-month internship segment starts at \$15,000, with at least \$10,000 allocated to intern stipend/salary.

Mitacs Elevate offers customized R&D management training for postdoctoral fellows and issues two competitive calls for proposals per year, typically in the spring and fall. Over two years, Elevate fellows receive career-ready skills training in areas such as project management, entrepreneurship, and presentation skills.

During this time, fellows apply their expertise to a large-scale research project with a Canadian partner organization, whose contribution is matched by Mitacs. Fellows receive an annual stipend/salary of at least \$50,000 in addition to the R&D management training valued at \$7,500 per year.

Mitacs Globalink fosters international research collaborations through student mobility to Brazil, China, France, India, Mexico, Turkey, and Vietnam.

The Globalink Research Internship brings talented undergrads to Canada for a summer research project. The Globalink Graduate Fellowship provides former Globalink Research Interns up to \$10,000 of funding per year for up to three years of graduate study at a Canadian university.

The Globalink Research Award offers up to \$5,000 toward student travel for collaborations with an accredited university abroad. The Globalink Partnership Award provides \$15,000 for a four- to six-month research project with partner organizations abroad.

Mitacs Step provides career-skills training to graduate students and postdoctoral fellows across Canada. Its curriculum focuses on four key competencies: leadership and management; communication and relationship building; personal and professional management; and entrepreneurialism.

Each Step workshop corresponds with one or more of these competencies, which are vital to professional success. Step participants gain a comprehensive toolkit of soft skills that may not be otherwise available to them throughout their university careers. Workshops are facilitated by industry professionals and are available at no cost to participants.

Mitacs offer research and training opportunities to undergraduate and graduate students, as well as postdoctoral fellows. Mitacs proudly counts the University of Saskatchewan as one of its full partner universities. Chris Bowman, PhD, is the University's Mitacs Business Development representative and can be contacted at 306.202.9630 or cbowman@mitacs.ca.

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Recent Child Health Publications from U of S Faculty

- Barton M, O'Brien K, Robinson JL, Davies DH, Simpson K, Asztalos E, Langley JM, Le Saux N, Sauve R, Synnes A, **Tan B**, de Repentigny L, Rubin E, Hui C, Kovacs L, Richardson SE. Invasive candidiasis in low birth weight preterm infants: risk factors, clinical course and outcome in a prospective multicenter study of cases and their matched controls. *BMC Infect Dis.* 2014;14:327. doi: 10.1186/1471-2334-14-327.
- Eng SW, Duong TT, **Rosenberg AM**, Morris Q, Yeung RS; on behalf of the REACCH OUT and BBOP Research Consortia. *The biological basis for clinical heterogeneity in childhood arthritis.* *Arthritis Rheumatol.* 2014. doi: 10.1002/art.38875. [Epub ahead of print]
- Guzman J, Oen K, Tucker LB, Huber AM, **Shiff N**, Boire G, Scuccimarri R, Berard R, Tse SM, Morishita K, Stringer E, Johnson N, Levy DM, Duffy KW, Cabral DA, **Rosenberg AM**, Larché M, Dancy P, Petty RE, Laxer RM, Silverman E, Miettunen P, Chetaille AL, Haddad E, Houghton K, Spiegel L, Turvey SE, Schmeling H, Lang B, Ellsworth J, Ramsey S, Bruns A, Campillo S, Benseler S, Chédeville G, Schneider R, Yeung R, Duffy CM; for the ReACCh-Out investigators. *The outcomes of juvenile idiopathic arthritis in children managed with contemporary treatments: results from the ReACCh-Out cohort.* *Ann Rheum Dis.* 2014. doi: 10.1136/annrheumdis-2014-205372. [Epub ahead of print]
- Jetha A, Badley E, Beaton D, Fortin PR, **Shiff NJ**, **Rosenberg AM**, Tucker LB, Mosher DP, Gignac MA. *Transitioning to Employment with a Rheumatic Disease: The Role of Independence, Overprotection, and Social Support.* *J Rheumatol.* 2014. [Epub ahead of print]
- **Kurji A**, **Tan B**, Bodani J, Janzen B, **McConnell A**, Bodani R, Rajakumar D, Sharma A, **Sankaran K**. *Children hospitalized with respiratory syncytial virus infection in Saskatchewan pediatric tertiary care centers, 2002-2005.* [Article in Chinese]. *Zhongguo Dang Dai Er Ke Za Zhi.* 2014;16:1005-1013.

Coming Events

JAN

SAT
31

Children's Hospital
Foundation of
SK Research
Grant Application
Deadline

MAR

THU
26

Dr. Ross E. Petty, B.C. Children's Hospital
Pediatric Grand Rounds 11:00am-12:00pm, East
Lecture Theatre, RUH, Title TBA
Pediatric Admission Rounds 12-1pm, RUH 6751
Title TBA;
Pediatric Rheumatology Seminar 1-2pm,
Location and Title TBA

APR

THU
16

Child Health Trainee
Research Day
11am-2:30 pm
Location TBA

APR

THU
30

Dr. Ricardo Russo M.D.
Head, Immunology and Rheumatology
Garrahan Pediatric Hospital
Buenos Aires, Argentina
Pediatric Grand Rounds 11-12pm
East Lecture Theatre, Title TBA

MAY

MON
11

Canadian Child Health Clinician
Scientist Prairie Region
Videoconference: "Translating
Research Discoveries into Action"
11:30am- 12:30pm
Presenter TBA, Location: TBA



Dr. Tracy Wilson-Gerwing, a postdoctoral fellow in the Department of Pediatrics (supervised by Dr. Alan Rosenberg) is the recipient of a Mitacs Elevate Fellowship.

This Mitacs Elevate Fellowship is being undertaken in collaboration with Bioriginal Food & Science Corporation. Throughout the two-year fellowship, I will be participating in a number of professional skills development workshops hosted by Mitacs. These workshops range from Strategic Messaging to Foundations of Project Management. At the time of my Orientation,

I was the only Mitacs Elevate Fellow from Saskatchewan.

The title of my Mitacs fellowship project is: *Synergistic actions of nutraceuticals on pain and inflammation in experimental arthritis.*

Project summary: Arthritis is among the most common chronic conditions in Canada in both children and adults. Arthritis is a potentially disabling disease causing joint inflammation and pain. Increasingly, people suffering from arthritis are using alternative therapies including nutraceuticals. This research aims to create new knowledge about the synergistic effects of gamma-linoleic acid (GLA), eicosapentanoic acid (EPA) and docosahexanoic acid (DHA) with and without boswellia serrate extract to improve pain and inflammation in models of juvenile and adult arthritis. Our research, by studying the mechanisms and key factors that produce pain associated with inflammation in arthritis, will provide scientific evidence for the efficacy of these unique nutraceutical combinations in these two differing age groups to improve care and outcomes in arthritis.

Research Project Opportunities

SUPERVISORS LOOKING FOR TRAINEES

- “Relationship between vitamin D levels and inflammation”

Study format: Database analysis. Contact: Dr. Alan Rosenberg, alan.rosenberg@usask.ca

- “Usability and utility of a pediatric discharge pain management chart”

Study format: Semi-structured interview and questionnaire. Contact: Dr. Susan Tupper, Coordinator Integrated Pain Strategy and Research, SHR, 306-715-8315, susan.tupper@usask.ca

- “Survey of Kawasaki Disease awareness among Saskatchewan physicians”

Study format: Survey. Contact: Dr. Alan Rosenberg, alan.rosenberg@usask.ca

TRAINEES LOOKING FOR SUPERVISORS

A Pediatric R2 resident is interested in examining the prevalence of e-cigarette use among youth in Saskatchewan. If you are a faculty member interested and willing to supervise, please contact erin.loose@usask.ca.

YOUR OPINION PLEASE!

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!

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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Online version of newsletter:
www.medicine.usask.ca/pediatrics/research/newsletter

Deadline for submissions for the next Research Report is March 6, 2015!



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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>

