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Department of Pediatrics Research Report

University of Saskatchewan

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Mind, Exercise, Nutrition, Do It!

Linda Martin and Carol Rodgers

Child and adolescent obesity levels continue to rise. While interventions to address this issue are abundant, few incorporate both the individual and their family, an identified key component of successful strategies. Mind Exercise Nutrition Do It or MEND, is a UK based program targeting children above a healthy weight [85th percentile] and their families.

MEND is a community-based, free, healthy lifestyle program. It is not a diet and it is not a weight loss program. The objective of the MEND program is to empower children and their families to become fitter, healthier, and happier.

MEND SK is funded by Saskatchewan Blue Cross, Community Initiatives Fund, and SK Sport. The program is administered and is being delivered by the College of Kinesiology, University of Saskatchewan in partnership with the Colleges of Pharmacy and Nutrition, Nursing, and Medicine.

The MEND program was adapted for use in Saskatchewan and first piloted to children aged 7-13 years and their families in Saskatoon, SK in fall 2012. MEND programs have since been implemented in Prince Albert, Regina, Moose Jaw, the Battlefords and soon to be launched in La Ronge [2015]. In addition MEND 2-4 and MEND 5-7 have been implemented in Saskatchewan over the past two years. The 2-4 MEND program is open to all children aged between 2-4, whereas MEND 5-7 and 7-13 targets children who are above a healthy weight.

Each MEND 7-13 program consists of two, two-hour sessions per week, over a 10-week period. The first hour provides children and their families with information and education about healthy eating, physical activity and strategies to change behaviours. During the second hour of the program, the children participate in physical activity [non-competitive games] while parents/guardians have the opportunity to learn and discuss parent support strategies.

MEND 5-7 is a healthy lifestyle program for 5 to 7 year olds who are above a healthy weight. It involves a 1 hour 45-minute session once a week for ten weeks. MEND 5-7 uses a child-friendly approach, it teaches parents/caregivers about healthy eating, parenting skills, and behaviour change techniques with a view to helping families adopt healthier lifestyles.

MEND 2-4 program is open to all children aged between 2-4 and their parents. Each session is 90 minutes long and promotes healthy eating and activity habits from an early age.

All programs are conducted in school and community facilities that offered access to classroom[s] and physical activity space. Measurement of body weight, physical

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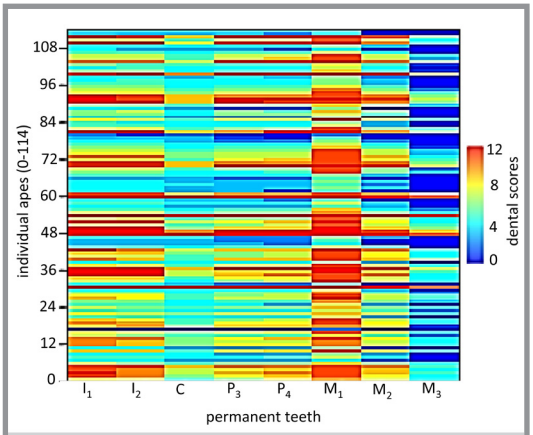

Image of Interest

The timing of tooth formation and eruption is so consistent that a child can often be reliably aged according to the teeth that have emerged. An extended period of childhood development sets humans apart from all other living primates. To help put the timing of human dental development (and childhood growth) into evolutionary context, it is important to study the timing of dental development for our fossil and living relations including our close cousins, chimpanzees and bonobos. These great apes reach maturity by about 12 years of age, compared to humans at about 18. The above matrix plot "heat map" of 12 dental scores for the eight permanent teeth of bonobos (0–34) and chimpanzees (35–114) shows that despite being separate species, the relative timing of crown and root formation of the permanent teeth is virtually the same in these apes. This result indicates that there is a pattern of tooth development specific to this particular genus of great ape (Pan), reflecting the split between human and ape lineages that happened over 6 million years ago.

From: Boughner JC, Dean MC, Wilgenbusch CS. Am J Phys Anthropol. 2012;149:560-71.

This issue of The Pediatric Research Report is sponsored by The Children's Health Research Trust Fund (P4 for more info.)

MEND Saskatchewan

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activity, sedentary behavior, nutrition, and body satisfaction self-esteem are completed at the commencement and completion of all the MEND programs.

Program participants are recruited through multiple strategies including self-referral or referrals by health professionals. The programs are offered at no cost to participants.

As program numbers grow throughout the province, we have seen some successful changes in the behaviours of our families. Even though MEND is a program targeted to children above a healthy weight, it is important that the focus is not on weight loss but on making healthy lifestyle choices for a lifetime.

There have been consistent outcomes seen throughout various programs, such as; increased fitness levels, improved self-esteem and self-confidence, increased consumption of vegetables and fruits, decrease consumption of junk food, and increased intake of water over pop and juice.

In speaking with the families that completed the program, some comments that came forward were; "learned how to explain portion sizes to my child, the gym activities were my child's favourite, our whole family has changed the way we now eat and I learned how to read food labels to ensure what I am buying is healthy".

By the end of each ten week MEND session we expect to see changes in the family's behaviour as this is the intensive intervention phase. Our early observations with the MEND 7-13 program, indicate that children continue to show improvements post 12 months in their fitness levels, a decrease in sedentary behavior, and an increase of consumption of vegetables and fruits.

The College of Kinesiology, U of S is proud to be home to the MEND program in Saskatchewan. For program information, visit kinesiology.usask.ca, email at mend@usask.ca, or call 1-844-899-6363.

PRESENTED BY UNIVERSITY OF SASKATCHEWAN College of Kinesiology

Linda Martin is Director of Operations MEND SK, College of Kinesiology, U of S, and Carol Rodgers is the Dean of the College of Kinesiology, U of S, and the lead for MEND SK.

Featured Child Health Researcher

Dr. Tanya Holt

Dr. Tanya Holt, originally from Regina, Saskatchewan, finished medical school and a pediatric residency at the University of Saskatchewan, followed by a 3-year pediatric critical care fellowship in Montreal. At this time, Dr. Holt began perusing a Master's Degree in Community Health and Epidemiology, which she continued when she was offered her current clinical position at the U of S. Dr. Holt is also the director of Pediatric Critical Care and Pediatric Inter-facility transport at Royal University Hospital.

Dr. Holt's research interests are primarily in the area of quality assurance in pediatric inter-facility transport. Since 2012 she has been a part of a Canadian collaborative group looking at standardizing care in pediatric acute care inter-facility transport. These standards are currently being evaluated by Accreditation Canada.

Pediatric transport service has increased in volume and acuity over the last year after consolidating pediatric critical care in Saskatchewan, and taking on the responsibility of provincial mobilization. With this increase in responsibility comes accountability, and therefore Dr. Holt's team, with the help of second year medical student, Jessica Suchorab, has developed a provincial pediatric transport registry, into which demographic, transportation, and detailed clinical data are collected. Dr. Holt would like to specifically assess utilization of PRISM scores (severity of illness scores) in the transport setting. Accurate severity of illness scoring is necessary to retrospectively look at specific transport clinical questions while controlling for severity of illness.

Dr. Holt is also examining an exciting new opportunity for triaging inter-facility transportation of pediatric patients in remote communities. In collaboration with Dr. Ivar Mendez (Dept of Surgery), she is exploring innovative technology with robotics for use in assessment and triage of pediatric patients in remote locations to determine the need for tertiary care, and if deemed necessary, whether the pediatric transport team is required. Objectives of this study will include evaluation of the feasibility of assessment and triage of these patients, as well as potentially providing care remotely in order to avoid unnecessary transportation, or in the event where inter-facility transportation is impossible due to weather.

Dr. Holt is also currently carrying out a prospective trial examining myocardial dysfunction in viral respiratory illness in PICU patients. The research group first completed a preliminary retrospective study in order to determine potential risk factors or exposures that may result in pediatric patients being more vulnerable to myocardial dysfunction if they are exposed to a viral respiratory illness. Erin Bingham, Kelsey Balutis, and Janlyn Rozdilsky presented this data as a poster at the World Congress of Pediatric Critical Care in May 2014.

Dr. Holt is a Clinical Assistant Professor in the Department of Pediatrics

Our Partners: Lupus SK Society Inc.

Thank you to the Lupus Society for their generous donation to the Pediatric Rheumatic Disease Laboratory, under the direction of Dr. Alan Rosenberg. These funds will be used to support pilot studies and students engaged in Lupus research.

The mission of the Lupus Society is to provide support for those affected by Lupus through understanding, public awareness, and research.

lupus Lupus SK Society Inc.

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 contact Dr. Alan Rosenberg at alan.rosenberg@usask.ca.

Prairie Plant Systems: Opportunities in Medical Marijuana Research

Dr. Larry Holbrook and Lindsay Thorimbert

Over the past year medical cannabis has been a topic of conversation across Canada. Doctors and patients are increasingly looking at this as a therapeutic alternative worth exploring in the right context. There are a lot of questions, and our commitment to research is founded in our desire to provide them with informed answers.

What kind of patients should use medical marijuana? How much should they use? What plant type or variety should they try? These and many other questions are extremely important, but scientifically-founded answers are often absent, anecdotal, or they are clouded by subjectivity and pseudo-science. An information gap surrounds medical cannabis and we believe the way to bridge it is through scientific research.

For 13 years, Prairie Plant Systems Inc. (PPS) was the sole supplier of medical cannabis to Health Canada. When the new Marijuana for Medical Purposes (MMPR) regulations were introduced in 2013, PPS and subsidiary CanniMed Ltd. became the first two organizations licensed to distribute medical cannabis directly to patients. PPS and CanniMed have a deep well of experience to draw from in helping close the gap between the anecdotal benefit of medical cannabis and evidence-based medicine.

A 2010 study using medical cannabis produced by PPS found it was well tolerated, improved sleep, and reduced the intensity of

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Recent Child Health Publications from U of S Faculty

• Almubarak S. Alexopoulos A, Von-Podewils F, Wang ZI, Kakisaka Y, Mosher JC, Bulacio J, Gonzalez-Martinez J, Bingaman W, Burgess RC. **The correlation of magnetoencephalography to intracranial EEG in localizing the epileptogenic zone: A study of the surgical resection outcome.** Epilepsy Research. 2014;108:1581-1590.

• Elahi S, Van Kessel J, Kiros TG, Strom S, Hayakawa Y, Hyodo M, Babiuk LA, Gerdts V. **C-di-GMP enhances protective innate immunity in a murine model of pertussis**. PLoS One. 2014;9:e109778.

• Engler-Stringer R, Le H, Gerrard A, Muhajarine N. **The community and consumer food environment and children's diet: a systematic review.** BMC Public Health. 2014 ;14:522.

• Guzman J, Gómez-Ramírez O, Jurencak R, Shiff N, Berard R, Duffy C, Oen K, Petty R, Benseler S, Brant R, Tucker L. **What Matters Most for Patients, Parents, and Clinicians in the Course of Juvenile Idiopathic Arthritis? A Qualitative Study.** J Rheumatol. 2014, Epub ahead of print.

• Jackowski SA, Kontulainen SA, Cooper DM, Lanovaz JL, Beck TJ, Baxter-Jones AD. **Adolescent physical activity and bone strength at the proximal femur in adulthood**. Med Sci Sports Exerc. 2014;46:736-744.

• Lipstein EA, Brinkman WB, Fiks AG, Hendrix KS, Kryworuchko J, Miller VA, Prosser LA, Ungar WJ, Fox D. **An emerging field of research: challenges in pediatric decision making.** Med Decis Making. 2014. Epub ahead of print.

• Nour MA, Perry RJ. **Current concepts surrounding bone health and osteoporosis in Turner syndrome. Expert Rev Endocrinol Metab.** 2014;9:515-524.

• Sabounchi NS, Hovmand PS, Osgood ND, Dyck RF, Jungheim ES. **A novel system dynamics model of female obesity and fertility.** Am J Public Health. 2014;104:1240-1246.

• Scientific Committee of ICPCN, Savva N, Krasko O, Knapp C, Downing J, Fowler-Kerry S, Marston J. **How can we improve pain control in children over the world? Results of international multiprofessional ICPCN survey.** Pain Med. 2014;15:1238-1239

• Sangha S, Greba Q, Robinson PD, Ballendine SA, Howland JG. **Heightened fear in response to a safety cue and extinguished fear cue in a rat model of maternal immune activation**. Front Behav Neurosci. 2014;8:168.

• Shiff NJ, Lix LM, Joseph L, Duffy C, Tucker LB, Svenson LW, Belisle P, Bernatsky. **The prevalence of systemic autoimmune rheumatic diseases in Canadian pediatric populations: Administrative database estimates.** Rheumatol Int. 2014, Epub ahead of print.

Recent Child Health Presentations at Scientific Meetings from U of S Faculty

• Nour MA, Perry RJ, Stephure DK, Hanley DA, Boyd SK. **Impact of GH on adult bone quality in Turner Syndrome: A high resolution peripheral quantitative computed tomography study**. 53rd Annual European Society for Pediatric Endocrinology Meeting, 2014, Sept 18-20, Dublin, Ireland. Available at: http://espe2014abstracts.eurospe.org/hrp/0082/hrp0082fc7.5.htm.

Coming Events

NOV THU **27**
Indigenous History Resources
12:00-1:00pm
Collaborative Learning Lab (Rm 145), Murray Library
http://libguides.usask.ca/LibraryResearcherSeries

EVERY WED UNTIL DEC 3
PAWs your stress...with a therapy dog
11:00 am - 12:00 pm
Place Riel Student Centre Rm 323
Drop in for a visit with a St John Therapy Dog (and it's owner). No appointment necessary.
whatsurcap.ca or peer.health@usask.ca

JAN **TBA**
Royal University Hospital Research Grant Application Deadline

JAN SAT **31**
Children's Hospital Foundation of SK Research Grant Application Deadline

FEB SAT **28**
Children's Hospital Foundation of SK Equipment Grant Application Deadline

APR THU **16**
Child Health Trainee Research Day
11am-2:30 pm
Location TBA

Prairie Plant Systems

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chronic neuropathic pain. This study used four types of cannabis, each with a different concentration of delta-9-tetrahydrocannabinol (THC). THC concentrations of 0, 2.5, 6, and 9.4 percent were used in the trial. Studies like this one highlight the importance of examining various concentrations, as the 9.4% product (25 mg inhalation) was found to be the most effective in this case.

Because we follow Good Manufacturing Practices (GMP), and are the only LP to do so, only a very small only a very small amount of variation in THC and cannabidiol (CBD) concentration is tolerated in PPS products. We have tight specifications that we must meet for a product to be released. Because THC and CBD are the main factors determining a cannabis product's efficacy these ratios need to be consistent for a clinical trial to produce usable results.

In May 2014 PPS announced the first clinical trial approved by Health Canada since the MMPR was introduced. This randomized, double blind, placebo controlled, proof-of-concept, crossover clinical trial will look at the effects of vapourized cannabis in adults with painful osteoarthritis of the knee. Recruitment starts soon. Roughly 36 percent of the patients who accessed cannabis from Health Canada were arthritis sufferers so this trial is particularly relevant and will have immediate application for doctors and patients.

As a leader in medical cannabis we have demonstrated our commitment to researching the clinical applications of this medicine, and that commitment will continue into the future. Examples of the research we are involved in include a clinical trial investigating the health consequences of cannabis use, a number of trials looking at the effects of CBD-rich cannabis in children with severe forms of epilepsy, and numerous other projects.

Cannabis is a complicated substance. Our role as Canada's leading LP is more than just offering a consistent product to potential patients, or to help grow the body of research around supporting its efficacy. We see our role as an opportunity to further legitimize cannabis as an acceptable medicine.

The seven products in the CanniMed line, named based on THC and CBD concentration. For example, CanniMed 4•10 contains 4.0% THC and 10.0% CBD

Dr. Larry Holbrook is the Senior Research Officer at Prairie Plant Systems
Lindsay Thorimbert is the Communications Coordinator at Prairie Plant Systems

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.

Postdoctoral Research Funding Opportunity

Significant research funding and training for postdoctoral fellows is now available through the **Mitacs Elevate Postdoctoral Fellowship**

• Two-year fellowship at $57,500/yr • Customized training in professional and R&D management skills • Long-term research project with a private-sector partner • Letter of intent deadline: November 26, 2014, at 5:00 p.m. PST • Application deadline: December 3, 2014, at 1:00 p.m. PST • Results announced: week of February 23, 2015

For more information, please visit www.mitacs.ca/en/programs/elevate or contact elevate(at)mitacs.ca.

Mitacs Elevate

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 January 9, 2015!

spring
SASKATCHEWAN PEDIATRIC RESEARCH AND INNOVATION GROUP

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Visit the Department of Pediatrics Research Webpage!

Children's Health Research TRUST FUND

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