1.5 Changes in Dietary Pattern and Impacts on Chronic Diseases Emergence

Summary

Project Leader(s)
Dewailly, Éric

In recent decades, many changes in lifestyle and dietary patterns have been observed among Inuit populations. The shift away from traditional lifestyle and diet has been associated with increased prevalence of cardiovascular risk factors such as obesity, high blood pressure, and elevated blood lipids. Our main objectives is to evaluate the impact of a changing environment (climate, contaminants, globalization, diet, etc.) on the health of Canadian Inuit. The study began in Nunavik (2004) and will be expanded to NWT and Nunavut. Dr. Grace Egeland is the recipient of the International Polar Year Inuit Health Survey grant award to conduct the Inuit Health Survey throughout Nunavut in 2007 and 2008 with additional communities in Nunatsiavut and Inuvialuit joining in 2008 pending discussions and approvals. All work proceeds with an invitation from municipalities and all Coastal communities from Sanikiliuq in the Southern Hudson Bay to Resolute in the High Arctic of Baffin have invited the CCGS Amundsen and the Inuit Health Survey work to be conducted in Aug and Sep of 2007. The project also represents an opportunity to link with Greenlandic, Nunavik and Alaskan health surveys in a collaborative International Inuit Health study. The health survey work evaluates nutritional health among children, aged 3-5 years with a focus on dietary transition and early health impacts. For adults, the survey design focuses on the health impacts of the rapid changes (dietary, social, environmental including climate change) on the health of the population.

People

Network Investigators
Dewailly, Eric (Centre de Recherche du Centre hospitalier de l'Université Laval)
Egeland, Grace (McGill University)
Fortier, Louis (Université Laval)
Young, Kue (University of Toronto)

Collaborators & Research Associates
Bjerregaard, Peter (National Institute of Public Health - Denmark)
Julien, Pierre (Université Laval)

Post-Doctoral Fellows
Chateau-Degat, Marie-Ludivine (Centre de Recherche du Centre hospitalier de l'Université Laval)
Counil, Émilie (Centre de Recherche du Centre hospitalier de l'Université Laval)
Lucas, Michel (Centre de Recherche du Centre hospitalier de l'Université Laval)
Michaud, Josée (ArcticNet Inc.)

PhD Students
Proust, Françoise (Université Laval)

Masters Students
Charbonneau, Guylaine (McGill University)
Fontaine, Julie (Université Laval)
Valera, Beatriz (Université Laval)

Technical Staff
Daigle, Louis-Frédéric (Centre hospitalier St-Sacrement)
Fontaine, Julien
Louchini, Rabia (Centre de Recherche du Centre hospitalier de l'Université Laval)
Maguire, Jean-Sébastien (Unité de recherche en santé publique)
Maheux, Andrée (Université Laval)

**Project Staff**
Akparook, Minnie (Inuulitsivik Health Centre)
Alasie, Iqiqq (Makivik Corporation)
Angma, Johnny (Hamlet of Aupaluk)
Aubé-Maurice, Joanne (Université Laval)
Augiak, Dalacy
Augiak, Annie (Kativik Regional Government)
Billon, Louise
Blanchet, Carole (Institut national de santé publique du Québec)
Brindel, Pauline
Bruneau, Suzanne (Institut national de santé publique du Québec)
Carrière, Marie-Paule (Canadian Coast Guard)
Côté, Suzanne (Unité de recherche en santé publique)
Desrochers, Lisanne (Institut national de santé publique du Québec)
Doutreloux, Véronique
Dupuis, Joanne (Institut national de santé publique du Québec)
Gargano, Virginie (Université du Québec à Chicoutimi)
Groulx, Olivier (Université Laval)
Kealam, Sophie (Nunavik CLSC - Point de service Palaqsivik de Kangiqsualujjuaq)
Labranche, Elena (Nunavik Regional Board of Health and Social Services)
Laraki-Côté, Kattam (Université de Montréal)
Lejeune, Pierre
Lemay, Karine
Lemelin, Sylvie (Canadian Coast Guard)
Naktialuk, Johnny (Hamlet of Inukjuak)
Nowkawalk, Charlie (Hamlet of Inukjuak)
Olivier, Karina (Institut national de santé publique du Québec)
Paré, Alain
Piché, Solange (McGill University)
Poulin, Michel (Université du Québec à Rimouski)
Robertson, Tirisi
Simoneau, Claudette
Van Spronsen, Eric (McMaster University)
Vézina, Carole (Unité de recherche en santé publique)

**Partners**
Government of Canada Program for International Polar Year
Indian and Northern Affairs Canada - Northern Contaminants Program
Inuit Tapiriit Kanatami
Ministère de la Santé et des Services sociaux - Québec

**Publications**

**Articles Published in Refereed Publications**
Bélanger, M.C., Dewailly, E., Berthiaume, L., Noël, M., Bergeron, J., Mirault, M.E. and Julien P., 2006, Dietary contaminants and oxidative stress in Inuit of Nunavik, Metabolism, Clinical and Experimental, 55:989-995, Published
Dewailly, E., 2006, Canadian Inuit and the Arctic Dilemma, Oceanography, 88-89, Published
Côté, Suzanne, Ayotte, P., Dodin, S., Blanchet, C., Mulvad, G., Petersen, H.S., Gingras, S., Dewailly, É., 2006, Plasma organochlorine concentrations and bone ultrasound measurements : a cross-sectional study in
Inuit women from Greenland, Environmental Health: A Global Access Science Source, v. 5, no. 33, 1-10, Published

Dewailly, É., Knap, A., 2006, Food from the Oceans and Human Health, Oceanography, v. 19, no.2, 85-93, Published


Chateau-Degat, M-L, Poirier, P., 2007, Insulin resistance, obesity and hypertension: is the link waist circumference?, Therapy, v. 4, no. 5, 575-583, Published


Ferland, A., Chateau-Degat, M-L, Counil, E., Lamarche, B., Dewailly, É., 2008, Caractérisation du profil de risque cardiovasculaire et des habitudes alimentaires des Inuit présentant une maladie cardiovasculaire, Méd Sci, 1, Accepted

Bélanger, M-C, Mirault, M.E., Dewailly, É., Berthiaume, L., Julien, P., 2008, Environmental contaminants and redox status of coenzyme Q10 and vitamin E in an Inuit population, Metabolism, 1, Accepted

Chateau-Degat, M.L., Dewailly, É., Poirier, P., Gingras, S., Egeland, G.M., 2008, Comparison of diagnostic criteria of the metabolic syndrome in three ethnic groups of Canada, Metabolism, 1, Accepted

Counil, É., Dewailly, É., Bjerregaard, P., Julien, P., 2008, Trans-polar-fat: all Inuit are not equal, Br J Nutr, v. 1, 1-4, Published

Other Refereed Contributions

Dewailly, É., Ayotte, P. and D. Pereg, 2006, Contaminants burden in Inuit from Nunavik: Temporal trends, emerging compounds, and associated biological/clinical effects., 14th Annual Meeting of the Northern Contaminant Program, Victoria, 1, Published

Julien, P., Bélanger, M.C., Dewailly, É., Mirault, M.E., Berthiaume, L., 2006, Metabolic syndrome and markers of inflammation in Inuit consuming omega-3 fatty acids, National Atherosclerosis Forum, Toronto, 1, Published

Fontaine, J., Dewailly, É., Ayotte, P., Pereg, D., Dréy, S. and Dallaire R., 2006, Variation of mercury, lead and cadmium levels in the Inuit population of Nunavik, 14th Annual Meeting of the Northern Contaminants Program, Victoria, 1, Published

Lucas, M., Dewailly, É., Gingras, S., Holub, B.J., 2006, Plasma omega-3 and psychological distress among Nunavik Inuit (Canada), 7th Congress of the International Society for Study of Fatty Acids and lipids (ISSFAL), Cairns (Australia), 1, Published
Dewailly, É. and Dallaire R., 2006, Environmental Contaminants and altered sex ratio, Arctic Monitoring and Assessment Programme and International Arctic Science Committee Symposium on Health and Contaminants, Reykjavik, Iceland, 1, Published

Bélanger, M.C., Dewailly, É., Bergeron, J., Tchernof, A., Berthiaume, L., MIrault, M.E. et P. Julien, 2006, Syndrome metabolique et marqueurs d'inflammation et de dysfonction endotheliale chez les inuit consommant des acides gras omega-3., Septième réunion annuelle de la Société Québécoise de Lipidologie, de Nutrition et de Métabolisme , 1, Published

Lucas, M., Blanchet, C., Gingras, S., Bruneau, S., Holub, 2006, Les oméga-3 et le risque d'un Niveau élevé de détresse psychologique (NEDP) chez les Inuit du Nunavik., 7e réunion annuelle de la Société québécoise de lipidologie, de nutrition et de métabolisme , 1, Published


Valera, B., Dewailly, É., Poirier, P., 2007, Influence of mercury on blood pressure among Nunavik Inuit adults, 2007 International Congress of Toxicology, Montréal, 1, Published

Valera, B., Dewailly, É., Poirier, P., 2007, Impact du mercure sanguin sur la tension artérielle chez les adultes cri de Mistissini (Baie James, Nord du Québec), 2007 La Société québécoise d'hypertension artérielle, 15e réunion scientifique annuelle, 1, Published

Valera, B., Dewailly, É., Poirier, P., 2007, Effet du mercure sur la tension artérielle chez les Cris (Baie James, Nord du Québec), 2007 Congrès Société québécoise d'hypertension artérielle, Québec, 1, Published


Bjerregaard, P., Dewailly, É., Egeland, G., Boyer, B., 2007, Inuit health in transition: Development of an international cohort study, 2007 Circumpolar Health Research, 1, Published

Dewailly, É., 2007, 15 years of environmental epidemiology in the Canadian Arctic, 2007 15th Annual results workshop, Northern Contaminants Program, Lake Louise, Alberta, 1, Published


Counil, É., Blouin, V., Grey, M., Kauki, T., Dewailly, É., 2007, Trans-polar fat: 2. Supporting Inuit communities in the practical implementation of a ban on industrially-produced trans-fatty acids from the foods imported to Nunavik, 2007 ArcticNet Annual Conference Proceedings., 1, Published

Valera, B., Dewailly, É., Poirier, P., 2007, Comparison of heart rate variability parameters in two aboriginal populations of Québec, 2007 Congrès Canadien de Cardiologie, Québec, 1, Published

Valera, B., Dewailly, É., Chateau-Degat, M.L., Poirier, P., 2007, Are heart rate variability (HRV) and metabolic syndrome (MetS) associated in Inuit population?, 2007 Congrès Canadien de Cardiologie, Québec, 1, Published

Dewailly, É., 2008, Overview in Arctic medical research in Nunavik, 2008 The Annual Worshop of the International Network for Circumpolar Health Research Tromso, Norway, 1, Published

Valera, B., Dewailly, É., Chateau-Degat, M.L., Poirier, P., 2008, Heart rate variability and metabolic syndrome in native Canadians, Joint Conference- 48th Cardiovascular Disease epidemiology and prevention annual conference and nutrition physical activity and metabolism conference, Colorado, USA, 1, Published

Valera, B., Dewailly, É., Poirier, P., 2008, Influence du mercure environnemental sur la tension artérielle dans une population autochtone du Québec, 2008 Congrès Société québécoise d'hypertension artérielle, Québec, 1, Published

Non-Refereed Contributions
Côté, S., Dodin, S., Blanchet, C., Mulvad, G., Pedersen, H.S., Dewailly, É., Ayotte, P., 2004, Antiestrogenic PCBs in the Arctic; Risk factors of osteroeporosis among Inuit women, Réunion scientifique annuelle 2004 d'ArcticNet, 28, Accepted


Dewailly, É., Déry, S., Young, K., Egeland, G., Bjerregaard, P., 2004, The Inuit health in transition study : The Qanuippitaa survey, changes in dietary pattern and impacts on chronic diseases emergence, Réunion scientifique annuelle 2004 d'ArcticNet, 10, Accepted

Dewailly, É., 2005, L'étude de cohorte inuite circumpolaire : de la recherche à l'intervention, Journée de la recherche de la Faculté de médecine, 1, Accepted

Charbonneau, G., Young, TK and Egeland, G., 2005, Anthropometric correlates of indices of insulin resistance among Inuit, 2005 ArcticNet Annual Conference Proceedings, 20, Published


Dewailly, E., Egeland, G., Young, T.K. and Bjerregaard, P., 2006, The International Inuit Cohort Study: Canadian component, ArcticNet Third Annual Scientific Meeting Proceedings, Victoria, Canada, December 12-15., 22, Published

Beatriz, B., Dewailly, É., 2006, Study of heart rate variability in Inuit adults of Nunavik exposed to mercury, Réunion scientifique annuelle 2006 d'ArcticNet, 109, Published


Dallaire, R., Dewailly, E., Ayotte, P., Déry, S. and Pereg, D., 2007, Plasmatic Concentrations of Perfluorooctanesulfonate in Inuit population from the Canadian Arctic and Effect on Thyroid Hormones Homeostasis, Eleventh International Congress of Toxicology, Montréal July 2007, 1, Accepted


Valera, B., Dewailly, E. and Poirier, P., 2007, Effect of Mercury on Blood Pressure Among Inuit Adults of Nunavik, Eleventh International Congress of Toxicology, Montreal July, 1, Accepted


Valera, B., Dewailly, E. and Poirier, P., 2008, Association Between Mercury and Blood Pressure in Nunavik Inuit Adults (18 Years and Older), 2007 ArcticNet Annual Conference Proceedings, ArcticNet, 89, Published

Specialized Publications
Charbonneau, Guylaine, Grace Egeland, HV Kuhnlein, Éric Dewailly, TK Young, 2004, Anthropometric determinants of underlying risk factors for type 2 diabetes mellitus among Inuit, Proceedings ArcticNet 2004 Annual Scientific Meeting, 26, Accepted

Dewailly, Eric, 2006, Theme 1 - Climate change impacts in the Canadian High Arctic: A comparative study along the East-West gradient in physical and societal conditions, Proceedings ArcticNet 2004 Annual Scientific Meeting, 1, Accepted