

1.5 Changes in Dietary Pattern and Impacts on Chronic Diseases Emergence

Summary

Project Leader(s)

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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 Sanikiluaq 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

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Partners

Government of Canada Program for International Polar Year
Indian and Northern Affairs Canada - Northern Contaminants Program
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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

peri- and postmenopausal 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

Fleming, L.E., Broad, K., Clement, A., Dewailly, E., Elmir, S., Knap, A., Pomponi, S.A., Smith, S., Solom, G., and Walsh, P., 2007, Oceans and Human Health: Emerging Public Health Risks in the Marine Environment., *Marine Pollution Bulletin*, 545-560, Accepted

Young, T.K., Bjerregaard, P., Dewailly, E., Risica, P.M., Jorgensen, M.E. and Ebbesson, S.E.O., 2007, Prevalence of obesity and its metabolic correlates among the circumpolar Inuit in 3 countries., *American Journal of Public Health*, 97(4), 691-695, Published

Chateau-Degat, M-L, Dewailly, É., Poirier, P., Egeland, G., Gingras, S., Blanchet, C. , 2007, Comparison of 3 diagnostic criteria of metabolic syndrome in 3 Canadian populations., *Circulation*, 2007;115(8):E233, 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

Fleming, L.E., Broad, K., Clement, A., Dewailly, É, Elmir, S., Knap, A., Pomponi, S.A., Smith, S., Solom, G. and Walsh, P., 2008, Oceans and Human Health: Emerging Public Health Risks in the Marine Environment, *Marine Pollution Bulletin*, 1, Accepted

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.É., 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

Charbonneau-Roberts, G., Young T.K. and Egeland, G.M., 2006, Inuit anthropometry and insulin resistance., *International Journal of Circumpolar Health*, 66(2): 129-134, Published

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 métabolique et marqueurs d'inflammation et de dysfonction endothéliale 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

Richmond, C., Ross, N. and Egeland, G.M., 2007, Societal Resources and Thriving Health: A New Approach for Understanding the Health of Indigenous Canadians, American Journal of Public Health, v.97, no.10, 1827-1833, 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 cris 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

Chateau-Degat, M.L., Poirier, P., Egeland, G., Gingras, S., Blanchet, C. Dewailly, É., 2007, Le syndrome métabolique, comparaison des critères diagnostiques dans trois groupes ethniques, 2007 La Société québécoise d'hypertension artérielle, 15e réunion scientifique annuelle, 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., Dewailly, É., Bjerregaard, P., Julien, P., 2007, Trans-Polar-Fat: 1. Distribution and health implications of trans-fatty acids in two Inuit populations., 2007 ArcticNet Annual Conference Proceedings., 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 Workshop of the International Network for Circumpolar Health Research Tromso, Norway, 1, Published

Dewailly, É., Muckle, G., ayotte, P., Dubé-Linteau, A., 2008, Gene-environment interactions and Inuit's health in Nunavik Norway, 2008 The Annual Workshop 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

Valerar, 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 osteoporosis among Inuit women, Réunion scientifique annuelle 2004 d'ArcticNet, 28, Accepted

Pereg, D., Martin, C., Bissonnette, L., Bergeron, M., Al-Sabti, K., Ayotte, P., Dewailly, É., 2004, The Atlantis mobile laboratory : A new tool for human health and environmental studies in remote settings, Réunion scientifique annuelle 2004 d'ArcticNet, 53, 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

Chateau-Degat, M.-L., Dewailly, E., Rochette, L., Ekoe, J.M. and Egeland, G., 2006, Metabolic syndrome, diabetes and related conditions in Inuit from the Nunavik., ArcticNet Third Annual Scientific Meeting Proceedings, Victoria, Canada, December 12-15., 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

Chateau-Degat, M.-L., Dewailly, E., Rochette, L., Julien, P., Poirier, P., Ekoe, J.M. and Egeland, G., 2007, Le Syndrome métabolique et diabète chez les Inuit du Nunavik, Lipidologie, Montréal, May 2007. Société québécoise de lipidologie, de nutrition et de métabolisme, 1, Accepted

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

Pereg, D., Dallaire, R., Chateau-Degat, M.-L., Ayotte, P., Fontaine, J., Déry, S. and Dewailly, E., 2007, Effects of (PFOS) on Plasma Lipids in the Inuit Populations of Nunavik (Northern Quebec), Eleventh International Congress of Toxicology, Montreal 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

Egeland, G., Saudny-Unterberger, H., Leggee, D., Sobol, I., Osborne, G., Charbonneau, G., Bruneau, S., Williamson, L., Sheutiapik, E., Young, T.K., 2007, International Polar Year Inuit Health Survey: Highlights of 2007 and Updates for 2008, 2007 ArcticNet Annual Conference Proceedings, 19, Published

Egeland, G.M., Saudny-Unterberger, H., Sobol, I., Williamson, L., Sheautiapik, E., Osborne, G. and Yound, K., 2008, International Polar Year Inuit Health Survey: Highlights of 2007 and Updates for 2008, 2007 ArcticNet Annual Conference Proceedings, ArcticNet, 15, Published

Faraj, N., Pacey, A., Williamson, L., Gunn, L., Osborne, G. and Egeland, G.M., 2008, Methodology of Inuit Health Survey for Children in Nunavut , 2007 ArcticNet Annual Conference Proceedings, ArcticNet, 46, Published

Okalik, L. and Egeland, G.M., 2008, Remembering the C.D. Howe in Amundsen Health Research: Pond Inlet Experience, 2007 ArcticNet Annual Conference Proceedings, ArcticNet, 76, Published

Pacey, A., Faraj, N., Leggee, D. and Egeland, G.M., 2008, H.pylori Infection and Iron Deficiency Anemia in Inuit Preschool Children Living in Nunavut, 2007 ArcticNet Annual Conference Proceedings, ArcticNet, 9, Published

Rosol, R., Boulet, V., Ford, A., Tagak, G., Saudny-Unterberger, H. and Egeland G.M., 2008, A Tribute to Minnie Grey: Using a DVD to Assist in Administering Informed Consent for the Nunavut Health Survey, «Qanuippitali?» How About Us, How Are We?, 2007 ArcticNet Annual Conference Proceedings, ArcticNet, 81, Published

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

Egeland, G.M., Charbonneau-Roberts, G., Kuluguqtuq, J., Kilabuk, J., Okalik, L., Soueida, R. and Kuhnlein, H.V., 2007, Back to the Future - Using Traditional Food and Knowledge to Promote a Healthy Future Among Inuit, In: H.V. Kuhnlein, B. Erasmus and D. Spigelski (eds), Indigenous Peoples' Food Systems: the Many Dimensions of Culture, Diversity, Environment and Health. Food and Agriculture Organization of the United Nations, 1, Accepted