

# MNCHP Network Bulletin



**best start  
meilleur départ**  
by/par health **nexus** santé

**October 7, 2011**

*In this Special Bulletin:*

This week's bulletin provides an overview of physical activity and pregnancy and includes news articles, recent reports and studies, resources, and links to organizations and programs working in this area. This selection of information is based on a preliminary scan and is not exhaustive.

***We invite you to share other relevant information about this topic.***

## ***I. PHYSICAL ACTIVITY AND PREGNANCY IN THE NEWS***

1. [Expectant Mothers Can Improve Baby's Heart Health with Exercise](#)

## ***II. KEY DOCUMENTS***

2. [American College of Sports Medicine Current Comments: Exercise During Pregnancy](#)
3. [Position Statement on Exercise and Pregnancy](#)
4. [Joint Society of Obstetricians and Gynaecologists of Canada \(SOGC\) and the Canadian Society of Exercise Physiology \(CSEP\) Clinical Practice Guideline: Exercise in Pregnancy and the Postpartum Period](#)

## ***III. RECENT REPORTS AND RESEARCH***

5. [Preconception Predictors of Weight Gain During Pregnancy](#)
6. [Impact of Physical Activity During Pregnancy and Postpartum on Chronic Disease Risk](#)
7. [Exercise in Pregnancy Leads to Smaller Babies](#)
8. [Physical Activity in Pregnancy: A Qualitative Study of Beliefs of Overweight and Obese Pregnant Women](#)
9. [Fetal Wellbeing May Be Compromised During Strenuous Exercise Among Pregnant Elite Athletes](#)
10. [Exercise During Pregnancy Improves Maternal Health Perception: a Randomized Controlled Trial](#)
11. [Exercise During Pregnancy: A Review of Patterns and Determinants](#)
12. [Exercise in Obese Pregnant Women: The Role of Social Factors, Lifestyle and Pregnancy Symptoms](#)

## ***IV. PRESENTATIONS***

13. [Active Living During Pregnancy and Postpartum](#)
14. [Prenatal Physical Activity and Obesity](#)
15. [Addressing Gestational Weight Gain: A Canadian Population Health Approach](#)

## ***V. RESOURCES FOR SERVICE PROVIDERS***

16. [Prenatal Education in Ontario: Better Practices](#)
17. [Physical Activity Readiness Medical Examination for Pregnancy](#)

## *VI. RESOURCES FOR PARENTS AND CAREGIVERS*

18. [Kids Health: Exercising During Pregnancy](#)
19. [Women's College Exercise and Pregnancy Help Line](#)
20. [Kingston-Living Well Phone Line](#)
21. [Active Pregnancy Resource](#) (available in French)
22. [Guide to Fitness During and After Pregnancy in the Canadian Forces](#)
23. [Baby Center: Exercise During Pregnancy](#)

---

## *I. PHYSICAL ACTIVITY AND PREGNANCY IN THE NEWS*

---

### **1. EXPECTANT MOTHERS CAN IMPROVE BABY'S HEALTH WITH EXERCISE**

Recent research by Dr. Linda May and her team of researchers at Kansas City University of Medicine and Biosciences (2010) indicates that women who exercise while pregnant improve not only their cardiovascular health, but that of their babies. Babies of these women were found to have decreased heart rates and increased heart rate variability at one month after birth.

News: <http://www.parentcentral.ca/parent/babiespregnancy/pregnancy/article/975030--expectant-mothers-can-improve-baby-s-heart-health-with-exercise>

Abstract: <http://www.ncbi.nlm.nih.gov/pubmed/20356690>

---

## *II. KEY DOCUMENTS*

---

### **2. AMERICAN COLLEGE OF SPORTS MEDICINE (ACSM) CURRENT COMMENTS: EXERCISE DURING PREGNANCY**

This commentary by the ACSM (2000) highlights the benefits of exercise during pregnancy, as well as the contraindications to such activity. Exercise may be undertaken within each of the three trimesters of pregnancy. Pregnant women who choose to exercise must: pay attention to their temperature in order to protect against heat stress, avoid activities that may result in abdominal injury or fatigue, modify their exercise to ensure proper weight gain and health, avoid strenuous activity or that which poses a falling hazard, and select exercise regimens that correspond with an appropriate level of intensity.

[http://www.acsm.org/AM/Template.cfm?Section=current\\_comments1&Template=/CM/ContentDisplay.cfm&ContentID=8638](http://www.acsm.org/AM/Template.cfm?Section=current_comments1&Template=/CM/ContentDisplay.cfm&ContentID=8638)

### **3. POSITION STATEMENT ON EXERCISE AND PREGNANCY**

This position statement written by the Canadian Academy of Sports Medicine (2008) provides several recommendations for exercise during low risk pregnancy. Moderate exercise during pregnancy is associated with positive psychological benefits and has not been reported to be associated with the incidence of maternal injury. Women who exercised prior to pregnancy may continue with their previous physical activity regime (in accordance with PARmed-x guidelines). The use of modified heart rate target zones (as mentioned in the PARmed-x), Borg's 15 point Rating of Perceived Exertion (RPE) Scale and the "talk test" are recommended methods for quantifying exercise intensity. When first beginning an exercise program, the duration of activity should increase gradually. Aerobic and strength training exercised are recommended. When exercising, hyperbaric, hyperthermic, humid and hypoxic

environmental conditions should be avoided, as should activities that pose a risk of falling or abdominal trauma.

<http://www.sirc.ca/newsletters/may08/documents/PregnancyPositionPaper.pdf>

#### **4. JOINT SOGC/CSEP CLINICAL PRACTICE GUIDELINE: EXERCISE IN PREGNANCY AND THE POSTPARTUM PERIOD**

This clinical practice guideline, written by the SOGC and CSEP (2003) informs obstetric care providers of the neonatal, maternal and fetal implications of exercise during pregnancy. This report recommends that all women without any previous contraindications should partake in aerobic and strength conditioning exercises during pregnancy, as adverse pregnancy or neonatal outcomes are not increased for exercising women. Women should maintain a good fitness level throughout their pregnancy and should choose activities that minimize the risk of loss of balance or fetal trauma. In the post-partum period, moderate exercise does not affect the quantity or quality of breast milk and pelvic floor exercises may be undertaken in order to reduce the risk of urinary incontinence.

<http://www.sogc.org/guidelines/public/129E-JCPG-June2003.pdf>

---

### **III. RECENT REPORTS AND RESEARCH**

---

#### **5. PRECONCEPTION PREDICTORS OF WEIGHT GAIN DURING PREGNANCY**

Recent research by Dr. Carol Weisman and colleagues (2010) demonstrates that being overweight prior to conception is associated with increased odds of excessive pregnancy weight gain. A preconception activity level meeting that recommended physical activity guidelines was found to be associated with reduced odds of excessive weight gain during pregnancy.

<http://www.womenshealthcoe.psu.edu/documents/Weisman-PreconceptionPredictorsofWeightGainDuringPregnancy.pdf>

#### **6. IMPACT OF PHYSICAL ACTIVITY DURING PREGNANCY AND POSTPARTUM ON CHRONIC DISEASE RISK**

The American College of Sports Medicine (2006) convened a round table meeting regarding the effects of exercise during pregnancy and the post-partum period on chronic disease risk. The results of this meeting are documented in this report. Topics include preeclampsia, gestational diabetes, breastfeeding, weight loss, musculoskeletal disorders, mental health, and offspring health and development. Exercise was found to be beneficial in each of these areas.

[http://www.acsm.org/AM/Template.cfm?Section=home\\_page&Template=/CM/ContentDisplay.cfm&ContentID=13131](http://www.acsm.org/AM/Template.cfm?Section=home_page&Template=/CM/ContentDisplay.cfm&ContentID=13131)

#### **7. EXERCISE IN PREGNANCY LEADS TO SMALLER BABIES**

Recent research by Hopkins and colleagues (2010) demonstrates that women who exercise regularly during pregnancy give birth to slightly smaller babies. Among those who exercised, no impact was observed with regards to insulin sensitivity and the development of the baby. It is predicted that a small decline in birth weight may have long term benefits for offspring by lowering the risk of obesity later on in life.

News: <http://www.cbc.ca/news/health/story/2010/04/05/exercise-pregnancy-babies.html>

Abstract: <http://www.ncbi.nlm.nih.gov/pubmed/20335449>

## 8. PHYSICAL ACTIVITY IN PREGNANCY: A QUALITATIVE STUDY OF BELIEFS OF OVERWEIGHT AND OBESE PREGNANT WOMEN

In a recent study conducted by Weir and colleagues (2010), women were found to view healthy eating as being of greater importance for maternal and child health than participation in physical activity. Reducing pregnancy related weight gain was found to be a motivating factor for maintaining physical activity during pregnancy. However, women often stated their intention to wait until the post-natal period to attempt to lose weight. Barriers to physical activity were both internal (physical and psychological) and external (family, time, work and environment). Women were found to lack access to consistent information, advice and support on the benefits of physical activity during pregnancy.

Abstract:

<http://www.ncbi.nlm.nih.gov/pubmed?term=Physical%20activity%20in%20pregnancy%3A%20a%20qualitative%20study%20of%20the%20beliefs%20of%20overweight%20and%20obese%20pregnant%20women>

## 9. FETAL WELLBEING MAY BE COMPROMISED DURING STRENUOUS EXERCISE AMONG PREGNANT ELITE ATHLETES

Recent research by Salvesen and colleagues (2011) demonstrates that among Olympic-level athletes, exercise intensity at above 90% of the maximal maternal heart rate may compromise fetal wellbeing. Fetal heart rate was found to slow when the women exercised at more than 90% of their maximal maternal heart rate.

Abstract:

<http://www.ncbi.nlm.nih.gov/pubmed?term=Fetal%20wellbeing%20may%20be%20compromised%20during%20strenuous%20exercise%20among%20pregnant%20elite%20athletes>

## 10. EXERCISE DURING PREGNANCY IMPROVES MATERNAL HEALTH PERCEPTION: A RANDOMIZED CONTROL TRIAL

A study by Barkarat and colleagues (2011) found that women who exercise moderately are more likely than those who are sedentary to perceive their health status as “very good”. Women in the exercise group gained less pregnancy weight than those in the sedentary control group.

Abstract:

<http://www.ncbi.nlm.nih.gov/pubmed?term=Exercise%20during%20pregnancy%20improves%20maternal%20health%20perception%3A%20a%20randomized%20controlled%20trial>

## 11. EXERCISE DURING PREGNANCY: A REVIEW OF PATTERNS AND DETERMINANTS

Through a review of the existing body of literature on pregnancy and physical activity from 1986 to 2009, Gaston and Cramp (2011) found that pregnant women are less likely than those who are not pregnant to exercise. Several demographic factors are associated with exercise during pregnancy (e.g., higher education, higher income, no other children present in the household at the time of pregnancy, being white, and being active prior to pregnancy). It was also observed that only a few studies used theoretical models to understand physical activity during pregnancy.

Abstract:

<http://www.ncbi.nlm.nih.gov/pubmed?term=Exercise%20during%20pregnancy%3A%20A%20review%20of%20patterns%20and%20determinants>

## 12. EXERCISE IN OBESE WOMEN: THE ROLE OF SOCIAL FACTORS, LIFESTYLE AND PREGNANCY SYMPTOMS

Recent research by Foxcroft and colleagues (2011) found that among obese pregnant women, several factors are associated with exercise during early pregnancy: a history of miscarriage, children living at home, a lower pre-pregnancy weight, and no nausea, vomiting or back pain during pregnancy.

Abstract:

<http://www.ncbi.nlm.nih.gov/pubmed?term=Exercise%20in%20obese%20pregnant%20women%3A%20the%20role%20of%20social%20factors%2C%20lifestyle%20and%20pregnancy%20symptoms>

---

## IV. PRESENTATIONS

---

### 13. ACTIVE LIVING DURING PREGNANCY AND POSTPARTUM

This presentation given by Dr. Michelle Mottola (2006) outlines existing guidelines and research on exercise both during and after pregnancy. The importance of active living both during and after pregnancy is highlighted, as well as the influence of parental actions on childhood obesity.

<http://parc.ophea.net/sites/default/files/symposium/PA-Pregnancy.ppt>

### 14. PRENATAL PHYSICAL ACTIVITY AND OBESITY

This presentation given by Dr. Michelle Mottola (2009) outlines the risk factors for weight gain, gestational diabetes, and childhood obesity. This presentation highlights the importance of obesity prevention, the benefits of active living, the current guidelines to physical activity in pregnancy and the barriers that must be overcome with regards to physical activity in pregnancy.

<http://www.beststart.org/events/detail/bsannualconf09/webcov/presentations/A2-Dr.%20Michelle%20Mottola.pdf>

### 15. ADDRESSING GESTATIONAL WEIGHT GAIN: A CANADIAN POPULATION HEALTH APPROACH

This presentation given by Becky Blair and Jennifer Hutcheson on behalf of Simcoe Muskoka District Health Unit (2011) uses a population health approach to examine gestational weight gain. This includes an emphasis on the influence of the social determinants of health (physical environment, social support networks, health services, income and social status, and personal health practices and coping skills) on gestational weight gain. Summaries of current gestational weight gain recommendations and guidelines for physical activity during pregnancy are provided. It also includes a summary of current recommendations for prenatal nutrition, as well as an overview of several initiatives related to physical activity and nutrition at the national, provincial and regional levels.

[http://www.beststart.org/events/detail/bsannualconf11/webcov/presentations/C5\\_presentation.pdf](http://www.beststart.org/events/detail/bsannualconf11/webcov/presentations/C5_presentation.pdf)

---

## V. RESOURCES FOR SERVICE PROVIDERS

---

### 16. PRENATAL EDUCATION IN ONTARIO: BETTER PRACTICES

This manual designed by the Best Start Resource Center (2007) covers various topics in prenatal education and is designed to inform prenatal educators and program managers of effective practices and current research. This guide provides recommendations about how to appropriately incorporate physical

activity information in prenatal education.

[http://www.beststart.org/resources/rep\\_health/pdf/prenatal\\_education\\_web.pdf](http://www.beststart.org/resources/rep_health/pdf/prenatal_education_web.pdf)

## 17. PHYSICAL ACTIVITY READINESS MEDICAL EXAMINATION FOR PREGNANCY

The PARmedx for Pregnancy (Canadian Society for Exercise Physiology, 2002) is a checklist that enables health care providers to evaluate patients who want to begin a prenatal fitness program, as well as monitor those already engaged in prenatal exercise.

<http://www.csep.ca/cmfiles/publications/parq/parmed-xpreg.pdf>

---

## VI. RESOURCES FOR PARENTS AND CAREGIVERS

---

### 18. KIDS HEALTH: EXERCISING DURING PREGNANCY

Targeted toward pregnant women, this article (Nemours, 2011) outlines the benefits of exercise during pregnancy. Exercise helps to relieve backaches, stress, constipation, and irritation of the joints, while increasing blood flow to the skin, leading to a healthy “glow”. Physical activity can help to reduce the amount of fat weight gained during pregnancy. Exercise during pregnancy can help to ease labour and delivery through greater heart health, muscle strength, and control over breathing. The appropriate amount and type of exercise depends on one’s level of fitness pre-pregnancy and complications during pregnancy. Possible activities include walking, swimming, water aerobics, yoga, Pilates, biking or walking. Women should consult their physicians (or other health care providers) before beginning an exercise regime. Activities that cause jarring, bouncing, leaping, sudden changes in direction or risk or abdominal injury) should be avoided. Kegel (pelvic floor) exercises can be undertaken to strengthen the pelvic floor muscles and reduce incontinence.

[http://kidshealth.org/parent/pregnancy\\_center/your\\_pregnancy/exercising\\_pregnancy.html#](http://kidshealth.org/parent/pregnancy_center/your_pregnancy/exercising_pregnancy.html#)

### 19. WOMEN’S COLLEGE EXERCISE AND PREGNANCY HELP LINE

The Exercise and Pregnancy Helpline is a free service offering information to all pregnant and pre-pregnant women who have questions relating to exercise during pregnancy.

<http://www.womenscollegehospital.ca/programs/program147.html>

### 20. KINGSTON-LIVING WELL PHONE LINE

Through the Kingston-Living Well Phone Line, Kingston residents can speak to a public health nurse on the phone relating to issues of getting and staying physically active.

<http://www.kflapublichealth.ca/Content.aspx?Themeld=2&CategoryId=32&TopicId=117&ContentId=129>

### 21. ACTIVE PREGNANCY RESOURCE

(available in French)

This guideline (City of Hamilton Public Health Services, Physical Activity Resource Centre, 2009) informs pregnant women how to undertake physical activity during pregnancy. Before aerobic activity, women should warm their muscles and joints with slow movements, followed by stretching. Aerobic activity should be performed at moderate intensity. Gradually, the intensity, duration and frequency of activity should be increased, with the best time to make such adjustments being the second trimester of pregnancy. There are many ways to maintain muscle strength during pregnancy. The use of light hand weights or elastic resistance bands, or alternatively floor (Kegel) exercises, upper body and lower body exercises may be performed. The development of good posture may help to alleviate back pain.



English: <http://www.hamilton.ca/NR/rdonlyres/C921F776-3764-4223-8A38-4512024B9E53/0/PARCActivePregnancyResource.pdf>

French:

[http://www.ophea.net/sites/default/files/resource/2010/05/parc\\_finalactivepregresourcefinal\\_french\\_18ja10\\_pd\\_16491.pdf](http://www.ophea.net/sites/default/files/resource/2010/05/parc_finalactivepregresourcefinal_french_18ja10_pd_16491.pdf)

## 22. GUIDE TO FITNESS DURING AND AFTER PREGNANCY IN THE CANADIAN FORCES

This document written by the Canadian Forces (2003) provides information for women in the Canadian Forces about how to maintain optimum fitness and health throughout their pregnancy. This guide outlines training routines that may be undertaken during pregnancy, the effects of body changes on exercise, the effects of exercise on pregnancy, safety during exercise, and proper nutrition during each trimester and in the post-partum period.

[http://www.navy.forces.gc.ca/navy\\_images/navres\\_images/welcome/gfdap-gcppag-eng.pdf](http://www.navy.forces.gc.ca/navy_images/navres_images/welcome/gfdap-gcppag-eng.pdf)

## 23. BABY CENTER: EXERCISE DURING PREGNANCY

This website (Baby Center, 2011) outlines several exercises that women can do while pregnant, including walking, weight training, yoga, low-impact aerobics and swimming. This website also provides answers to many physical activity and pregnancy related questions.

<http://www.babycenter.com/pregnancy-exercises>

*The Best Start Resource Centre thanks you for your interest in, and support of, our work. Best Start permits others to copy, distribute or reference the work for non-commercial purposes on condition that full credit is given. Because our MNCHP bulletins are designed to support local health promotion initiatives, we would appreciate knowing how this resource has supported, or been integrated into, your work ([mnychp@healthnexus.ca](mailto:mnychp@healthnexus.ca)). Please note that the Best Start Resource Centre does not endorse or recommend any events, resources, or publications mentioned in this bulletin.*

---

Click here to access Health Nexus' other e-bulletins and listservs:

In English:

- [OHPE](#) - The free weekly Ontario Health Promotion E-mail bulletin (OHPE) offers a digest of news, events, jobs, feature articles on health promotion issues, resources, and much more, to those working in health promotion. <http://www.ohpe.ca/>
- [Click4HP](#) - An open, facilitated public listserv, is an international dialogue on health promotion. Participants exchange views on issues and ideas, provide leads to resources, and ask questions about health promotion. <https://listserv.yorku.ca/archives/click4hp.html>
- [Health Promotion Today](#) - Health Nexus Today is our Blog on health promotion. According to Google, "Blog is short for weblog - a journal or newsletter that is frequently updated and intended for the general public." Find the latest on health promotion including breaking news, highlights, studies, and issues in health promotion and the determinants of health in Canada and internationally. <http://www.blogs.healthnexusante.ca/>

In French:

- [French distribution list](#) - The free distribution list offers information in French on maternal, newborn, and child health promotion topics. [http://www.meilleurdepart.org/index\\_fr.html](http://www.meilleurdepart.org/index_fr.html)
- [Le Bloc-Notes](#) - The biweekly French language bulletin provides information on health promotion. <http://leblocnotes.ca/>