

# WellSpring

## Exercise and Pregnancy: Canadian Guidelines for Health Care Professionals

Government  
of Alberta

ALBERTA  
SPORT, RECREATION  
PARKS & WILDLIFE  
FOUNDATION

Alberta  
Freedom To Create. Spirit To Achieve.

UNIVERSITY OF  
ALBERTA

DR. MICHELLE F. MOTTOLA, PhD, FACSM & DIRECTOR, R. SAMUEL McLAUGHLIN FOUNDATION-EXERCISE AND PREGNANCY LAB, UNIVERSITY OF WESTERN ONTARIO

In Canada, many pregnant women do not exercise enough, gain too much weight during pregnancy, and develop gestational diabetes and hypertension. Part of the problem is that many pregnant women and their health care providers tend to focus on asking “how much exercise is too much” while at the same time minimizing or not considering the benefits of exercise.

In fact, pregnancy is not the time to “put up your feet and rest” but rather a time for healthy lifestyle change. Pregnant women should not “eat for two”, but rather eat twice as healthy and watch portion sizes.

### What's in This Article for You?

- Getting to Know the Benefits
- Get to Know the Exercise Guidelines
- About Aerobic Exercise
- Muscle Conditioning Guidelines
- Can Overweight and Obese Pregnant Women Exercise?
- Are There Different Guidelines for Fit Pregnant Women?
- Contraindications to Exercise
- About PARmed-X for Pregnancy
- Medical Practitioners Should Promote Exercise During Pregnancy



This article presents some important facts and resources to help medical practitioners, other health care professionals and pregnant women better understand the benefits of physical activity during pregnancy.

### Getting to Know the Benefits

Here are some important factors that pregnant women should be informed about.

### Prevention:

Increasing physical activity and leading an active lifestyle during a pregnancy will help to prevent:

- excessive weight gain during pregnancy; post partum weight retention; gestational diabetes, and the associated risk of developing type 2 diabetes later in life; obesity; and heart disease (Charkoudian & Joyner, 2004).

Diabetes, cardiovascular disease and obesity are reaching epidemic proportions in our society and thus healthy lifestyle changes initiated early in life (pregnancy) will be beneficial for both mother and offspring. The healthy environment that a mother provides during pregnancy has a profound impact on fetal programming and can prevent chronic disease risk in the adult of the future (Mottola et al., 2010).

**Labour:** Physical discomfort, as well as complications of labour and birth, may be alleviated in more active women (Kelly, 2005). Being physically active will also give women the stamina to get through labour and the ability to recover more quickly from birth.

**Mental Health:** A more positive effect on self-image and fewer depressive symptoms occur in active women during and after pregnancy (Wolfe & Mottola, 1993). This is important as being physically active may help prevent postpartum depression.

## Get to Know the Exercise Guidelines

Pregnant women should also be informed about relevant exercise guidelines and how to meet the recommendations included in the guidelines.

In Canada, the guidelines for exercise during pregnancy are found in *PARmed-X for Pregnancy* (Wolfe & Mottola, 2002), published by the Canadian Society for Exercise Physiology (CSEP) in 1996, endorsed by Health Canada, and revised in 2002.

It's important for pregnant women to know that in a healthy low-risk pregnancy, mild to moderate intensity exercise poses no threat to mother or fetus (Davies et al. 2003).

## About Aerobic Exercise

As recommended in the guidelines and by other credible sources, the most important type of exercise is aerobic activity (using large muscle groups).

The most popular form of aerobic activity during pregnancy is walking (Mottola & Campbell, 2003).

*PARmed-X for Pregnancy* was designed for recreationally active pregnant women and presents the F.I.T.T. principle with the following guidelines:



- Frequency (F) of exercise should begin at 3 times per week, building up to 4 times per week.
- Intensity (I) of exercise is monitored through the use of the target heart rate zones based on age, which represents around 60 to 80% of peak aerobic capacity (Mottola et al., 2006).

For pregnant women, these target heart rate zones are:

- less than 20 years old – 140 to 155 beats per minute (bpm);
- 20 to 29 years old – 135 to 150 bpm; and
- 30 to 39 years old – 130 to 145 bpm (Wolfe & Mottola, 2002).

Intensity is also monitored by the use of the “Talk Test”, in which a pregnant woman carries on a conversation without becoming out of breath. If the woman is breathless while speaking during exercise, the intensity of the activity must be reduced.

In *PARmed-X for Pregnancy*, a rating of perceived exertion scale is provided in which a woman rates how hard she thinks she is working. This should be in the 12 – 14 range (somewhat hard) on the perceived exertion scale.

- The Time (T) of the activity should start at 15 minutes per target heart rate session with an increase in time of 2 minutes per week until 30

minutes is reached and then maintained. All aerobic activity should begin with a warm-up and cool-down of 5 to 10 minutes of lower intensity.

- The Type (T) of activity should include low-impact or non-weight bearing endurance exercise using large muscle groups such as walking, stationary cycling, swimming, aquatic exercise or low-impact aerobics.

Women with low-risk pregnancies who start an exercise program should begin in the second trimester, at the lower end of the target heart rate zones. Those who have been avid exercisers can continue at the higher end of the target heart rate zones.

### Muscle Conditioning Guidelines

Women can also do muscle conditioning exercise when pregnant. However, specific precautions should be taken:

- no exercises in the supine position (lying on her back) past 16 weeks of pregnancy;
- avoid bouncing exercises;
- stretches should be controlled;
- avoid abdominal exercise if diastasis recti (splitting of the connective tissue midline in the front abdomen wall) develops.

In addition, correct posture and a neutral pelvic alignment should be emphasized and precautions taken during resistance exercises. A pregnant woman should avoid holding her breath and emphasize her breathing through the exercise. High repetitions (e.g., 12 to 15 repetitions) should be done only with low weights, such that the repetitions can be comfortably done.

Examples of muscular strengthening exercises are listed on page 3 of *PARmed-X for Pregnancy*.

### Can Overweight and Obese Pregnant Women Exercise?

Women with a pre-pregnancy body mass index (BMI) of over 25 kg/m<sup>2</sup> can exercise if they have a low risk pregnancy and no contraindications.

The target heart rate zones found in *PARmed-X for Pregnancy* may be too high for overweight and obese women and thus new target heart rate zones have been validated for this population group (Davenport et al., 2008; Mottola et al., 2010) at a lower intensity (20-39 % aerobic capacity), but still high enough to gain an aerobic benefit.

These target heart rate zones based on age are: 102-124 bpm (20 – 29 years) and 101-120 bpm (30-39 years) and can be used in conjunction with *PARmed-X for Pregnancy*.

### Are There Different Guidelines for Fit Pregnant Women?

For very fit, medically pre-screened pregnant women, the current target heart rate zones may not be appropriate and thus target heart rate zones validated on pregnant women of different fitness levels are also available (Mottola et al., 2006).

For low-risk, fit pregnant women 20 to 29 years old, the target heart rate zone is 145–160 bpm. For low-risk, fit pregnant women aged 30 to 39, a zone of 140–156 bpm may be more appropriate.

To confirm appropriate intensity, these target heart rates should be used in conjunction with *PARmed-X for Pregnancy*.

### Contraindications to Exercise

For some women, there may be times when physical activity may not be appropriate or may need to be modified. It is important for health professionals to be aware of the contraindications to exercise.

*PARmed-X for Pregnancy* lists both relative and absolute contraindications (Davies et al., 2003).

### About *PARmed-X for Pregnancy*

*PARmed-X for Pregnancy* (Wolfe & Mottola, 2002) is a medical tool for screening pregnant women who are interested in starting an exercise program or who wish to continue being active.

In this document you will find some practical resources, including:

- A questionnaire for pregnant clients to complete in order to supply you with important medical history and a recent patient activity profile.
- A convenient list for the medical provider to check for contraindications to exercise.
- Evidence-based practical guidelines and prescriptions for participating in aerobic and muscle conditioning activities.
- A tear-away medical clearance form that can be completed by the obstetric provider and presented to prenatal fitness professionals by the pregnant woman.

## Medical Practitioners Should Promote Exercise During Pregnancy

With the clearly established benefits of physical activity before, during and after pregnancy, it's vital for medical practitioners to actively encourage pregnant women to be physically active.

By using the medical pre-screening tools included in *PARmed-X for Pregnancy* and by promoting the recommended exercise guidelines included in the document, medical practitioners can play a key role in boosting the physical activity levels of pregnant women, so that they and their offspring can enjoy the health benefits.

*Dr. Michelle F. Mottola is a Professor at the University of Western Ontario in the School of Kinesiology in the Faculty of Health Sciences and Department of Anatomy and Cell Biology in the Schulich School of Medicine and Dentistry. She is also the Director of the R. Samuel McLaughlin Foundation – Exercise and Pregnancy Laboratory. This is the only lab in North America that specializes in the area of exercising pregnant and postpartum women. Dr. Mottola is a Fellow of the American College of Sports Medicine, a member of the Canadian Society of Exercise Physiology and a co-author of the PARmed-X for Pregnancy.*



### WELLSPRING ADVISORY COMMITTEE

Jason Bostick, Alberta Health Services  
Reg Nugent, MacEwan Centre for Sport and Wellness, Grant MacEwan University  
Leigh Goldie, Grande Prairie Regional College  
Lisa Workman, Edmonton Oliver Primary Care Network  
Katherine Zmurchyk, Northern Alberta Institute of Technology (NAIT)  
Angela Torry, Alberta Centre for Active Living  
Don Buchanan, Alberta Centre for Active Living

## Mission Statement of the Alberta Centre for Active Living

Working with practitioners, organizations, and communities to improve the health and quality of life of all people through physical activity.

WellSpring is published six times a year.  
ISSN 1187-7472

IF YOU HAVE ANY SUGGESTIONS OR  
QUESTIONS, WE'D LIKE TO HEAR FROM YOU.

Alberta Centre for Active Living  
Percy Page Centre  
3rd Floor, 11759 Groat Road  
Edmonton, AB T5M 3K6

Phone: 780.427.6949 or  
1.800.661.4551 (toll-free in Alberta)  
Fax: 780.427.2677  
Website: [www.centre4activeliving.ca](http://www.centre4activeliving.ca)  
E-mail: [active.living@ualberta.ca](mailto:active.living@ualberta.ca)

### STAFF

Director: Judith Down  
Research Coordinator: Christina Loitz  
Education Coordinator: Angela Torry  
Communications & Marketing  
Coordinator: Don Buchanan  
Resource Coordinator:  
Rosanne Prinsen  
Centre Coordinator: Betty Lee  
Financial Administrator: Carol Knull  
Administrative Assistant:  
Lynda Matthews-Mackey

### RESEARCH ASSOCIATES

John Spence, PhD  
Tanya Berry, PhD

**Disclaimer:** The views and opinions expressed herein are those of the author/s and do not necessarily reflect the views and opinions of the Alberta Centre for Active Living or the WellSpring Advisory Committee.