

APrON dads

Our APrON dads are stepping up to the plate by swabbing their cheeks and filling out questionnaires. Some have even agreed to provide a blood sample! To date, about 1200 dads (over 60%) have contributed in some way to our study, making APrON one of the first studies of its kind to have data on multiple family members.



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Preliminary Results

Our first APrON participant joined the study in May 2009. Since then, APrON moms, dads and babies have given countless hours to this very important research. After nearly three years, we finally have something to give back - **RESULTS!** Please see **pages 2 and 3** for a feature article on *Healthy Weight Gain During Pregnancy—a sneak peak at APrON's first cohort.*

Calgary participants enjoy an APrON baby party

- Alejandra Mejia (Calgary RA)

At the beginning of September 2011, APrON held its first baby party in Calgary. We invited our Calgary participants, whose babies are now 1 and 2 years old, to join us for an afternoon of fun: food, presentations, question and answer period, games, face painting, and door prizes! We wanted to show our participants how much we appreciate their involvement in the study and of course, to see our APrON babies again, since they are growing so fast! We hope everyone enjoyed themselves and we look forward to planning more baby parties for Edmonton and Calgary in the future.



Preliminary Results



APrON
continues to
grow

Over 1900 pregnant
women have joined
the study!

Did you know...

That a total of 1442
APrON babies have
been born, including
765 (53%) boys and
677 (47%) girls?

Healthy Weight Gain During Pregnancy - A sneak peak at data from APrON's first cohort

Fatheema Begum, PhD Candidate, University of Alberta, Edmonton

How much weight should a woman gain while pregnant?

- Gaining weight is a natural part of being pregnant - it helps baby grow and develop, and prepares mom for breastfeeding.
- How much weight a woman should gain while pregnant depends on her Body Mass Index (BMI) before she becomes pregnant (her pre-pregnancy BMI).
- BMI is a ratio of weight-to-height and can be used to measure body fatness. BMI can be calculated using the following formula: **BMI = weight (kg)/height (m)²**
- Health Canada's recommendations for total weight gain during pregnancy, based on pre-pregnancy BMI, are listed in Table 1 below:

**Table 1 - Health Canada's Guidelines For Total
Weight Gain During Pregnancy**

Pre-pregnancy BMI (kg/m ²)	Recommended Total weight gain	
	kg	lbs
Underweight (BMI <18.5)	12.5 - 18	28 - 40
Normal (BMI 18.5-24.9)	11.5 - 16	25 - 35
Overweight (BMI 25-29.9)	7 - 11.5	15 - 25
Obese (BMI >30)	5 - 9	11 - 20

What have studies before APrON shown?

- Among Canadian women aged 18-39 years old, 23% were overweight and 20% were obese.¹
- How much weight a woman gains while she is pregnant helps to predict mother's and baby's health now and in the future.²
- Women who gain weight above Health Canada's guidelines are more likely to develop:
 - pregnancy complications, such as pre-eclampsia, high blood pressure, and gestational diabetes
 - delivery complications, such as C-sections or assisted births.³
- Women who gain too much weight while pregnant have a harder time losing the weight after they give birth.⁴ These women are also more likely to have a higher birth weight baby, which increases the baby's risk of obesity later in life.⁵

References:

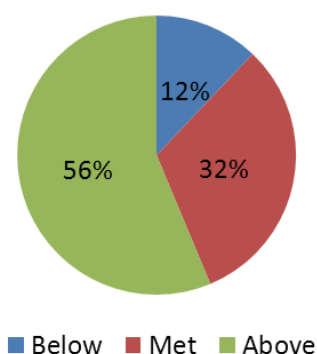
- 1) Body composition of Canadian adults 2007 to 2009 Statistics Canada 2010
- 2) Prenatal Nutrition Guidelines for Health Professionals - Gestational Weight Gain. Health Canada, Ottawa 2010.
- 3) Viswanathan M, Siega-Riz AM, Moos MK, *et al*. Outcomes of maternal weight gain. *Evid Rep Technol Assess (Full Rep)*. 2008(168):1-223
- 4) Schmitt NM, Nicholson WK, Schmitt J. The association of pregnancy and the development of obesity - results of a systematic review and meta-analysis on the natural history of postpartum weight retention. *Int J Obes (Lond)*. 2007;**31**(11):1642-51
- 5) Crozier SR, Inskip HM, Godfrey KM, *et al*. Weight gain in pregnancy and childhood body composition: findings from the Southampton Women's Survey. *American Journal of Clinical Nutrition*. 2010;**91**(6):1745-51

How much weight did our APrON women gain?

Based on data collected from the first 600 APrON participants, also known as APrON's first cohort, we found that:

- Over 50% of pregnant women gained above Health Canada's guidelines for total weight gain (see Figure 1 below)

Figure 1: Percentage of APrON women who met, gained above, or gained below Health Canada's recommendations for total weight gain during pregnancy



- Of the 56% of women who gained above the recommendations for total weight gain, the average total weight gain by women in different BMI groups was as follows:
 - Underweight women - 24 kg (6 kg above highest recommendation)
 - Normal weight women - 21 kg (5 kg above highest recommendation)
 - Overweight women - 18 kg (6.5 kg above highest recommendation)
 - Obese women - 13 kg (4 kg above highest recommendation)
- For the entire first cohort (not just the 56% of women who gained above the recommendations) overweight and obese women were 5-6 times more likely to gain above the recommendations when compared to normal weight women

Where do we go from here?

This information is being shared with the Provincial Task Force on promoting healthy weight gain in pregnancy, which hopes to help inform and define supports for future pregnant women.

Take Home Message:

- Weight gain is a natural part of being pregnant
- More than half of the women in APrON's first cohort gained more than is recommended by Health Canada
- Women should try to adhere to Health Canada's recommendations for total weight gain in order to have the best chance at having a healthy pregnancy and a healthy baby

APrON says farewell to two key staff members, Sarah Loehr and Dayna-Lynn Dymianiw

After nearly two years as the Edmonton Research Coordinator, Sarah Loehr has dusted off her books and headed back to school. Sarah started her Masters in Nutrition and Metabolism at the University of Alberta this September. She's not the only one - Dayna-Lynn was Calgary's Research Assistant Supervisor for 2 years. She too has moved on to the next chapter in her life and began her Masters at the University of British Columbia this past September. On behalf of the APrON team, we thank Sarah and Dayna-Lynn for their contributions to this project and wish them all the best in their future endeavors!

Fetal Programming Study looks at stress during pregnancy



Despite the joys of having a baby, **stress** is something you cannot avoid - it is a fact of life! With the birth of a new baby, many couples face the challenges of finding a new living space, a bigger car, or a having a lower income. Some people may also worry about baby's growth and the birth experience. In the past, no one had really thought about these stressors affecting baby, as it was thought that baby was protected by the womb. But new research suggests that stress and worry can be passed from mother to baby and might alter the way baby's brain develops.

Dr. Gerry Giesbrecht and a team of researchers at the University of Calgary are now studying the effects of stress on baby development in a sub-sample of APrON women. The **Fetal Programming study** is designed to answer questions about the ways a mother passes stress to her baby in the womb. In the end, the team hopes to develop interventions that will help moms and babies who are experiencing or have experienced stress.

Although it's too early to report on any results from the Fetal Programming study, pregnant women want to know if their stress is affecting their baby's development and if so, what they can do about it. Some wonder if they should be worried about their stress. To the extent that stress and worry are part of everyday life, and therefore unavoidable, the answer is no. Still, it may be wise to find ways to reduce stress, especially for women who are chronic worriers, are often anxious or depressed, or who face an extreme stressor while pregnant. Finding ways to share the wonder and challenge of a new life with a partner or friend can help our minds and bodies relax and avoid the unhealthy effects of stress.

So far more than 150 women have enrolled in this APrON sub-study. As an APrON participant, you may join the study if you are less than 22 weeks pregnant. To learn more about Fetal Programming visit www.FetalPro.ca.

All pictures were donated for use by Heather Wagner Photography, Edmonton, AB. For more information, please visit www.healthierwagnerphotography.com.



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If you have any **suggestions, questions or comments**, please send them in. We appreciate any and all feedback!

