

Preparing the Vessel

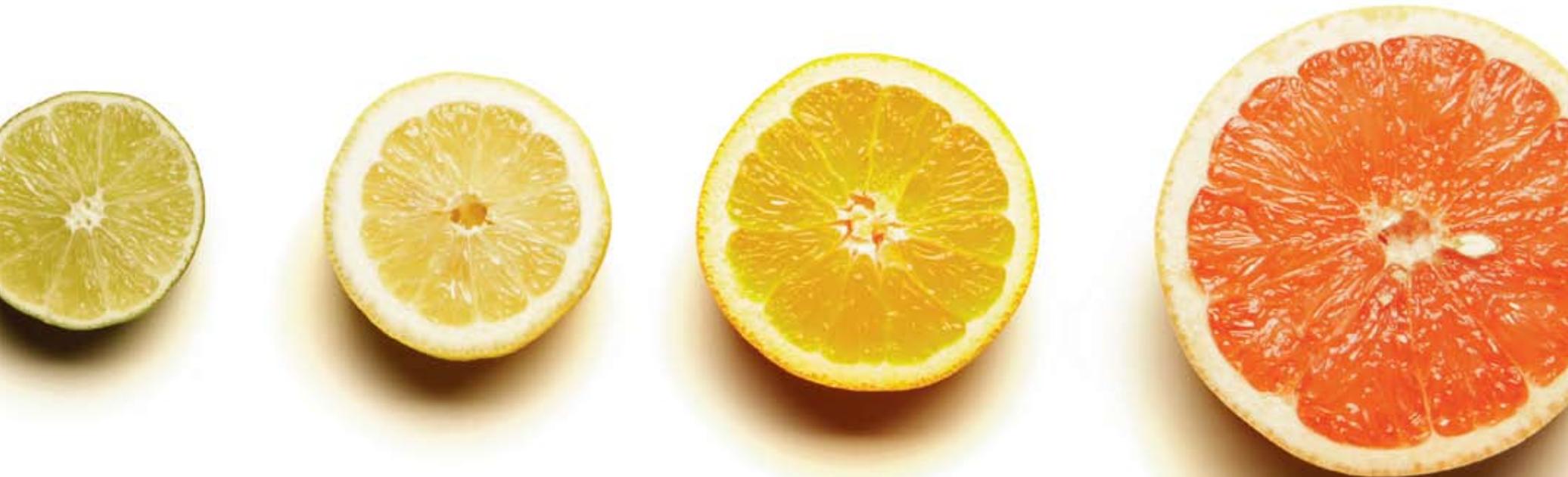
Yo, Mommas-to-Be!
Put down those onion rings and bite into a sweet, juicy pear instead. Here's a taste of APron, a groundbreaking study of pregnant women in Alberta designed to determine just how much what you eat matters when you're eating for two.

by *Jacquie Moore*

SWERVE

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"Everything grows rounder and wider and weirder, and I sit here in the middle of it all and wonder who in the world you will turn out to be."—Carrie Fisher



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Should you put down those greasy onion rings and indulge in fruity goodness instead? Here's a taste of APrON, a ground-breaking study of pregnant women in Alberta designed to determine just how much what you eat matters when you're eating for two.

BY **JACQUIE MOORE**

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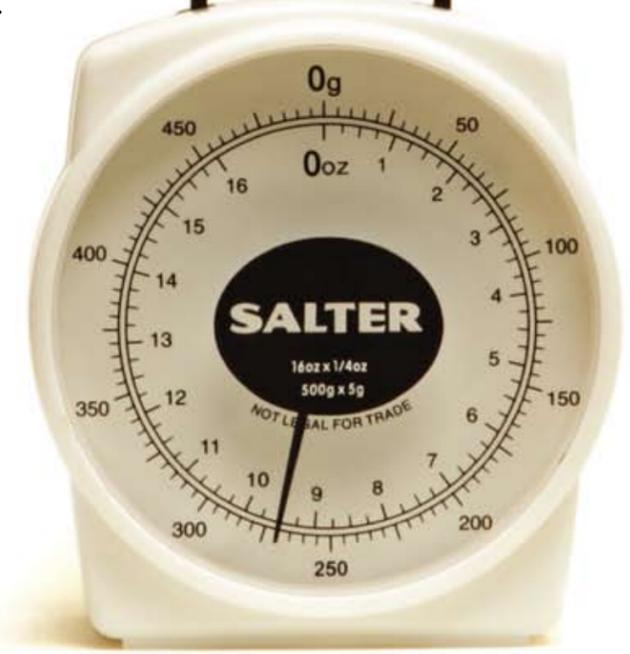
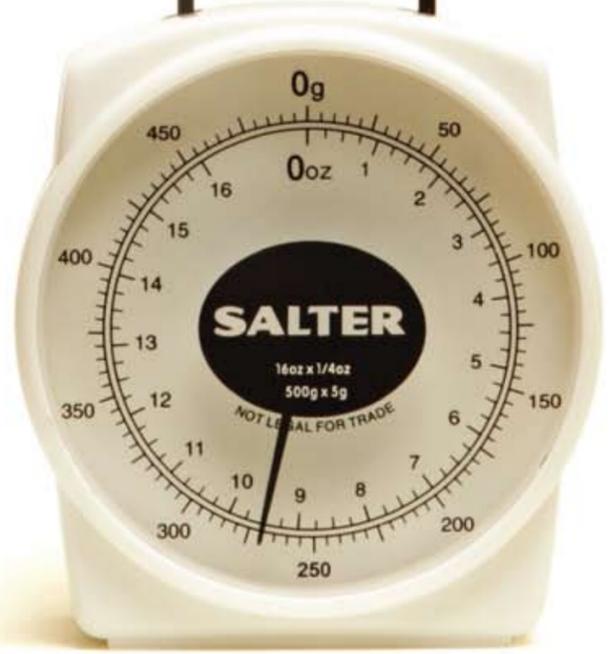
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photos by
Randy Gibson



Preparing the Vessel



Should you put down those greasy onion rings and indulge in fruity goodness instead? Here's a taste of APrON, a ground-breaking study of pregnant women in Alberta designed to determine just how much what you eat matters when you're eating for two.

by *Jacquie Moore*

The onion rings didn't come with a list of micronutrients. All I knew for sure about them was that they satisfied an animal craving deep in my pregnant belly, and that they were available on the route home from my obstetrician's office. Were they a healthy choice for an expectant mother? Good eating for an unborn baby? Did the crispy batter cancel out every trace of B vitamins the onions might contain? Did I ask myself these questions?

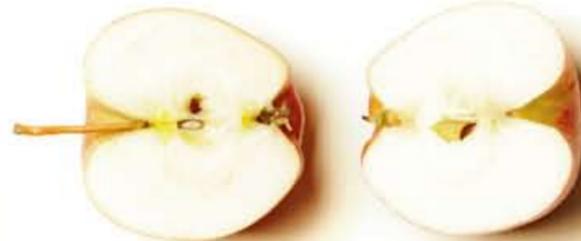
No, I did not.

Nor did I want to be likewise interrogated by my health-nut husband, who had been lovingly—and obsessively—preparing organic, whole-food meals for me three times a day for the past 36 weeks. And so, every Tuesday during the final month of my pregnancy, I sat alone in the parking lot of Peters' Drive-In and gorged myself on a cardboard box full of heavenly grease and crunch. This is the first my husband will learn of my deep-fried indiscretions.

If the delivery hadn't gone so swimmingly and our now two-year-old son not turned out to be such a hardy specimen, he'd no doubt blame my flawed prenatal diet. And he might be right. The province of Alberta is spending \$4 million over the next four years to learn about the relationship between what an expectant mother eats and how her baby turns out.

That women should eat well during pregnancy is hardly breaking news. There are more than 56,000 results for "nutrition in pregnancy" online and nearly as many books on the topic by doctors, chefs, midwives and mothers. The conventional wisdom can be boiled down to this: Ramp up the fruit, veggie and whole-grain intake, avoid alcohol and caffeine (as well as a few particularly troublesome foods such as raw fish and soft cheese), take your vitamins and, voilà—you've done your part.

A 2007 study by Dutch doctors revealed that children of mothers who ate apples had a significantly reduced risk of developing asthma.



But eating well for two wasn't always so obvious. Registered dietitian Kristin Wiens from the University of Calgary says interest in prenatal nutrition was only sparked on a worldwide level "during eras of limited food availability and wartime famine, such as the Great Depression and across Europe in WWII" when numbers of suboptimal pregnancy outcomes increased. It wasn't until much later, she says, that "national and provincial governments became increasingly involved in formulating prenatal nutrition recommendations," with the release of the "What to Eat Before Baby is Born" protocol in 1971 and, in 1987, the "Nutrition in Pregnancy" guidelines. The Canada Prenatal Nutrition Program—a project that provides funding to enhance programs for vulnerable pregnant women—came about in 1994.

These days, however, vulnerability isn't only defined by food scarcity; it's a condition that can also be attended by an overabundance of food—largely of the highly processed kind. To make matters murkier, a widespread, tacit belief often overrides the prevailing wisdom that mothers-to-be should stick to the produce aisle—namely, the belief that what a pregnant woman *craves*, a pregnant woman must *need*. Onion rings? Chocolate Frosty? Swanson's Classic Fried Chicken Strips? You'll get out of mama's way if you know what's good for you—and what's good for her.

That was an alibi I clung to whenever I strayed from the puritanical path my husband led me down for nine months. As relatively fanatical as I was about my prenatal diet, the world outside my door often seduced me with what writer and food crusader Michael Pollan would call "edible food-like substances," the likes of which can be had without the trouble of getting out of your car or straying from the freezer section of most grocery stores.

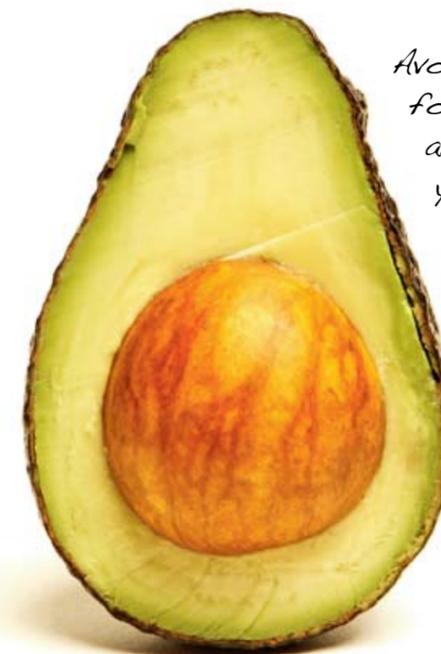
It's interesting to note that, while a pregnant woman who orders a shot of whiskey or lights up a cigarette all but instigates a public stoning, nobody seems to notice when she buys her lunch from a vending

machine. It's possible, of course, that what women eat in pregnancy will turn out not to matter all that much. Given, however, that doctors and scientists remain largely in the dark about the causes of a variety of perinatal problems, from maternal anxiety and depression to premature delivery and low birth weight, birth defects, ADHD and autism, shouldn't we be hedging our nutritional bets?

*A*lberta Pregnancy Outcomes and Nutrition (APrON) is a study currently underway at the Alberta Children's Hospital and the University of Alberta. It's the largest longitudinal pregnancy cohort ever funded in Canada and was designed to determine the impact of the nutrient intake of pregnant women on their mental and physical health, as well as that of their children. If things go the way lead investigator Dr. Bonnie Kaplan hopes, the results from APrON will ultimately influence Canada's Food Guide, as well as what goes into prenatal vitamins and baby food, and how school boards and day cares feed children. I predict the study may also conclude that onion rings are not an ideal lunch for peggos.

Dr. Kaplan is a petite, energetic woman with one grown son. She hasn't eaten a fast-food burger in a decade and makes it her business to pay attention to what other people put in their grocery carts. In general, she feels that "none of us eat well enough." Kaplan is a big fan of British chef Jamie Oliver and his quest to educate the western world on how to eat healthily; she directs me to a YouTube video of Oliver's recent prize-winning "Ted Talk" in which he reveals statistics about the prevalence of diet-related disease. "We're bringing up this generation of kids with a shorter life span than us," says Kaplan. "It's appalling."

For a psychologist with expertise in nutrition and mental/behavioural illness, heading up a study that will ask 10,000 pregnant women in Calgary and Edmonton what they are eating is a dream gig. "I've always been curious about the relationship between nutri-



Avocados contain more folate per gram than any other fruit (and yes, like tomatoes, they are often confused with vegetables). Incidentally, at 16 weeks gestation, a baby is about the size of an avocado.

*An old wives' tale claims that eating eggplant
Parmesan will induce labour and/or result in
giving birth to a blue-skinned baby. On the
upside, aubergines are high in potassium.*



tion and brain development—it's my passion," says Kaplan. "This study (which celebrates its one-year anniversary this month) has allowed me to put together a team of people who share my vision to ask a lot of really important questions." The APrON team consists of two biostatisticians, a geneticist, a neonatologist, four psychologists, two family doctors, a thyroid specialist and four nutrition researchers with specialties in various micronutrients. This group will collect and analyze data from questionnaires completed by dads and expectant and post-partum moms, as well as urine and blood samples from both mamas and babies to figure out what, if anything, might be missing from their diets.

The high-water mark of past studies of this kind—the one Kaplan refers to time and again when explaining the importance of APrON—is the discovery of the importance for a healthy pregnancy of folic acid. Folic acid (also known as vitamin B9) occurs naturally in leafy vegetables, citrus fruit, beans and whole grains, and is one of about 40 micronutrients needed by the human body (the others include all the other familiar vitamins, as well as minerals such as calcium and magnesium and organic acids like citric and lactic). In 1960, scientists in the U.S. discovered a link between a deficiency in folic acid and neural-tube defects such as anencephaly and spina bifida. Whereas health-care professionals once viewed such congenital anomalies (which in many cases result in infant death, deformity, developmental delay, physical disabilities and decreased life expectancy) as facts of life about which nothing could be done, recent evidence proves that the risk can be reduced substantially by increasing maternal intake of folic acid during the first few weeks of pregnancy. (The critical period for increasing folate levels is the first 28 days of pregnancy, often before a woman even knows she's pregnant.)

Public-service announcements and lectures from family doctors have subsequently cemented the folate message into the minds of women of childbearing age: take a 400 mcg folic-acid supplement

daily. To boot, a national dietary fortification program ensures that all commercial white flour and enriched pasta and cornmeal contain a measure of folate. The campaign is working: a recent seven-province study showed a reduction of 46 per cent in the overall rate of neural-tube defects since 1998.

In Bonnie Kaplan's mind, that is science at its best. "That's basic research followed by a policy decision followed by a successful public health measure," she says. "Science figured out the folate problem and transferred that knowledge to the public." And, she adds, that was only one micronutrient, one anomaly. Her APrON "fantasy" is to discover a link between a micronutrient deficiency and disorders such as autism and cerebral palsy. "Why not?" she asks. "Twenty years ago, who would have thought that spina bifida could be almost completely preventable with one micronutrient?" Kaplan says that while she can't be certain that APrON will make these sorts of discoveries, she "would predict that we'll find that women who are more vulnerable to perinatal depression, for instance, may be deficient in some micronutrients." To prove it, the APrON team has to rely on the kindness and curiosity of thousands of pregnant women across the province.

Eynthia Seow is a trim, freckle-nosed Australian-Chinese physician who came to Calgary via Toronto two years ago. She's also the mother of three-month-old Lucas. I meet her on the fourth floor of the Alberta Children's Hospital (the home site for APrON in Calgary) where she is asked to take a seat at a table strewn with rubber food—a pile of chicken stir fry, a pancake, a bundle of French fries. She spends the next 15 minutes telling a dietitian precisely what she—and, via her breast milk, her baby—ate the day before.

"At 10 a.m. I had half of an apricot roll from Cobs," she says, turning to me to apologize for her "really bad day yesterday." The dietitian asks Seow how big the roll was. "About half of that, I guess," says Seow, pointing to a rubber bran muffin. She then sheepishly confesses

that for lunch she had "six caramel Hershey's Kisses and about eight of those President's Choice puff-pastry things stuffed with spinach, mushroom and cheese." At 3 p.m., when her in-laws arrived for a visit, she had a cup of Malaysian-Chinese fruit soup, the exotic contents of which confounded the dietitian to no end ("How big were the lotus seeds?" "How many ginkgo nuts?" "What nuts are *bula kuah* most similar to?"). Her dinner consisted of a chicken drumstick cooked in soy sauce and black wood ear mushroom, a couple of pork ribs, a cup of white rice and some Chinese broccoli. For dessert Seow had "a standard mango" and a cup of oolong tea. "Yesterday would have been easier," she says with a laugh. "I had A&W."

Once her dietary recall is complete, Seow is escorted to a nearby room for a blood sample and body measurements; she tells me she has two kilos left to lose to be back at her pre-baby weight. The nurses who assist her—indeed, everyone Seow encounters during her visit—are enthusiastic and sweet; Lucas is cooed over and congratulated for his part in the study, and today his photo will join those of the 150 other APrON babies pasted to the walls. Seow will come back in three months for her next round of tests and questions. She and Lucas's dad will also have to fill in questionnaires relating to their diets and mental states, as well as provide information on their baby's temperament, sleep behaviour, emotions and co-ordination.

It seems like an awful lot of work for a volunteer, but it's actually just a 30-hour time commitment, including four in-person visits over the course of five years. Still, I wonder why a busy, tired, pregnant woman, and then a busy, tired, new mom, would bother to sign up. Kaplan herself seems amazed that so many women—most of whom are recruited by their family doctors—agree to take part. "I don't know why they do it," she says, adding that the majority of participants so far are well-educated with relatively healthy diets. Maybe it's simply that "these are people who want to contribute to society," she surmises. "Does that sound corny?"

For Seow, it's bang on. She signed on as an APrON volunteer during the first trimester of her pregnancy because, she says, "I think it's a worthwhile study." As a doctor and a mother, she believes "there are important questions that need to be answered: How does maternal health and nutrition affect the outcomes for the child? I wanted the opportunity to be part of answering that."

And there are other perks. Kaplan introduces me to Brenda Turley, whose job it is, in part, to arrange weekly and monthly raffles for gift certificates, yoga classes and professional photo sessions for APrON participants. To boot, mothers are given a month of free diaper service, a parenting workshop and a coupon for childproofing services, among other tokens of appreciation.

Perhaps the biggest perk of all for the first 1,500 mothers to sign on, however, is the opportunity to get an expert's perspective on their baby's cognitive development.

Baby Lucas is part of that group. At the age of three, he'll return to the Alberta Children's Hospital for an assessment that will test his development through a series of little "games"—he'll put a peg into a slot, copy a picture of a square with paper and pencil, mimic various movements.

Depending on the future funding of the APrON study, researchers hope to follow Lucas and his peers for many years—potentially even once they are parents themselves.

In the meantime, what's a pregnant woman to eat while she awaits the next great folic-acid-level discovery? Jamie Oliver, Michael Pollan and Bonnie Kaplan would no doubt recommend eating a variety of real food.

Now, if only Swiss chard came in a takeout box. **S**

APrON needs you!

That is, they need you if you are less than 27-weeks pregnant, more than 16 years old and live in Calgary or Edmonton. Participants will receive summaries of the study results, as well as information about their child if he or she is selected to be part of a developmental assessment at the Alberta Children's Hospital. Call 403-955-7365 or visit apron.ca and click on "Get Involved" to sign up.