ALBERTA'S TOMORROW PROJECT
Inspiring research for a healthier tomorrow

UPDATE ON ALBERTA'S TOMORROW PROJECT

Tomorrow's News

ESTABLISHED IN 2000 TO LEARN MORE ABOUT CANCER AND CHRONIC DISEASE

VOLUME SEVEN - ISSUE ONE - WINTER 2017

VISIT: www.myATP.ca

Survey 2017 is on the way and we need you!

Alberta's Tomorrow Project is proud to offer you the ability to complete the latest survey online.

This year marks another milestone in Alberta's Tomorrow Project, with the launch of our next participant survey.

Your continued involvement is crucial to ensure ATP's huge database grows even larger and more valuable for cancer and chronic disease research.

We'll be sending invitations to complete Survey 2017 in the coming months. We are proud to offer the new option of completing the detailed survey online. Here's how it works: participants with an email address on file will get an invitation via email, to register for the online survey.

Not sure we have your current email address? Update us by emailing tomorrow@ahs.ca. For any participants who would prefer to fill out a paper version of Survey 2017, let us know and we will mail out a paper questionnaire as we have in the past. If we do not have an email on file, we will mail you a paper survey.

Our online survey is just the first step in a new way of communicating with ATP. We are developing an online portal to make it easier to stay in touch, and have been working diligently to make sure the portal meets provincial policy and legislation standards for privacy and confidentiality of your personal information.

Watch for the launch of our portal later this year.

We're already excited about receiving your surveys, whether online or on paper!

Cancer Prevention Guidelines

How effective are lifestyle guidelines for preventing cancer?

When it comes to avoiding diseases like cancer, we're all familiar with advice to quit smoking, eat healthy food, and wear sunscreen. But do guidelines like these really work for cancer prevention?

That's the question a team of researchers at Alberta's Tomorrow Project (ATP) have been asking. Thanks to detailed and ongoing participant questionnaires about lifestyle - including physical activity, nutrition and weight - scientists can see which habits are linked most commonly with an eventual cancer diagnosis.

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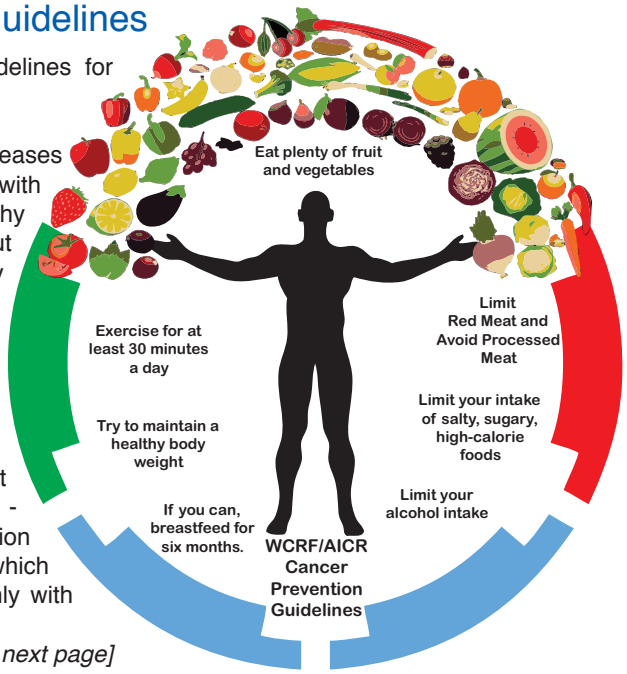

Please Help Us Keep Your Files Up To Date

Have you moved, retired, changed your email address or phone numbers? Take a moment to update us with your new contact information.

Staying in touch with participants is important for the project's success!

Keeping current participant contact information reduces the number of participants who are 'lost to follow-up.'

Please take a moment to notify us with any changes or additions to your information. Even if you move outside of Alberta or Canada, we can send you information and updates.

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Canadian Partnership Against Cancer
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Cancer Prevention Guidelines

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Research underway on Alberta's Tomorrow Project Participants

Last year, ATP researchers examined how closely participants follow cancer prevention guidelines issued in 2007 by the World Cancer Research Fund (WCRF)/American Institute for Cancer Research (AICR).

The agencies offer specific recommendations relating to body fat, physical activity, consumption of fruits, vegetables, red meat, and supplements, tobacco use and alcohol intake, to reduce the risk of cancer by as much as a third.

ATP's study revealed that 77% of men and 60% of women in the project are either overweight or obese. Participants with a higher degree of education and greater household income reported healthier diet and physical activity habits. Overall, women followed the recommendations more closely than men.

The next step for ATP researchers involved tracking which participants have had a cancer diagnosis since joining the project, and drawing connections with their lifestyle habits to date.

The conclusion? After about ten years of follow-up, those participants following the WCRF/AICR cancer prevention guidelines most diligently were 19% less likely to develop cancer, compared with participants who adhered least closely to the recommendations. The study concluded that the WCRF/AICR prevention guidelines can indeed significantly reduce the risk of developing cancer.

Lead investigator Dr. Jason Xu says the findings should reassure people that they can influence their cancer risk, and that every healthy habit further improves the odds.

"In effect, we have evaluated the guidelines and found that the participants who took steps like avoiding tobacco, eating more fruits and vegetables, and limiting their consumption of red meat had a significantly lower risk during the decade or so we followed them."

Future studies will likely pinpoint which specific behaviours have the greatest impact on cancer risk.

An ambitious year ahead

A letter from Dr. Paula Robson, Scientific Director of Alberta's Tomorrow Project

Dr. Paula Robson, Scientific Director, Alberta's Tomorrow Project.

Hello! I'm excited to update you about the many activities we've embarked upon in the last year, and our significant plans for 2017.

Since achieving our major recruitment target for Alberta's Tomorrow Project (ATP) in 2015, we have turned our efforts to promoting use of the massive dataset among researchers throughout Alberta, across Canada and around the world.

Hundreds of thousands of details about your diet, sleep habits, weight history, physical activity and more – as well as biological samples – can support scientific investigations into cancer and chronic disease.

To ensure that scientists are familiar with the research platform and the wealth of information within it, we have staged several seminars in universities across the province, within government and for Alberta Health Services. We want them to know that ATP is truly "open for business".

A major undertaking in the coming year is the launch of what we're calling a Knowledge Bank: a wide-scale baseline analysis of blood samples donated by 30,000 of our participants.

By conducting the basic tests in a single Alberta laboratory, we can ensure consistency and offer researchers even greater value through the resulting data. Augmenting the research platform in this way will significantly increase the long-term influence of the information and biosamples you've so generously donated.

Because of ongoing collaboration with our four regional sister cohorts in the Canadian Partnership for Tomorrow Project (CPTP), your data are being analyzed and compared on a national scale.

This will enable more detailed discoveries into how and why certain people get cancer and chronic disease in various parts of the country, and others don't.

> "It was always in the back of my mind that I should quit smoking. Thanks to my involvement in Alberta's Tomorrow Project, I finally did!"
>
> JEAN FOWNES
> *ALBERTA'S TOMORROW PROJECT PARTICIPANT*

But perhaps our most significant project for 2017 is the launch of the next questionnaire, with a bit of a difference.

In the coming months, all participants will receive an invitation to fill out the follow-up health and lifestyle survey; for the first time, you will have the choice to complete it online, or on paper. In this way, we hope to make the important work of updating your personal health information easier, faster, and more convenient.

Thanks to the ongoing dedication of our participants, Alberta's Tomorrow Project maintains the potential to shape cancer and chronic disease research and prevention programs now and in the future.

As always, we thank you for your commitment, your enthusiasm, and your investment in the health of generations to come.

> "I visited the study centre, and received a report on my health after my visit. I remember my weight was a little high.
>
> From that time on, I said, 'No, I have to do better.' Because I had the motivation, I started to run. And after that, two years later, I decided to target the marathon. I completed my marathon and after that I did another one, and so on! My health kick began with my involvement in Alberta's Tomorrow Project."
>
> GEORGE BERMUDEZ
> *ALBERTA'S TOMORROW PROJECT PARTICIPANT*

Who's Who in Alberta's Tomorrow Project

We recently interviewed Michael Day, one of the first ATP participants to reach age 85. He provided energetic and thoughtful input on his time with the project and his hopes for ATP in the years and decades to come.

What made you want to join Alberta's Tomorrow Project?

I understand the value of long-term studies and realize you must have an adequate number of people from a broad cross-section of society to produce meaningful results.

Why do you think it's important to stay enrolled, and to fill out surveys about your diet and health?

Terminating one's contribution to the project at, say, 70 would make it hard for those data to be fully used. Everyone who does a statistical project wants as much information as possible. You don't want people to give up the ship, as it were, halfway through. My father would say, "In for a penny, in for a pound!"

What do you expect from Alberta's Tomorrow Project?

Much has been achieved in cancer treatment but much more needs to be done regarding prevention. As far as ATP is concerned, the public needs to see the good it's doing. What is the output and what are the benefits attributed to this project? Fortunately, ATP's questions are standardized across Canada. For example, driving licence requirements for the elderly needlessly vary from one province to another. This does not need to be the case! Carefully collected statistics, properly managed and standardized, are essential for research. But more dietary questions must be asked.

If you could suggest an area of research, what would it be?

The relationship between diet, cancer and heart disease must be thoroughly explored. We're told dietary supplements (rarely scientifically peer-reviewed) are unnecessary with a healthy diet, but what is healthy? It's unclear in the supermarket, the front line in the battle for better eating.

Photo Courtesy: Michael Day

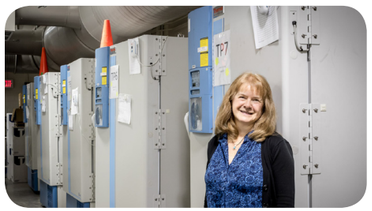
The profit motive runs counter to the long-term public interest; remedial government action is necessary. The costs of disease treatment are staggering. ATP and its partners across Canada should take the lead in working with governments and the food industry to improve Canadians' diets as this can only have a beneficial effect on disease prevention.

We agree! The research team is already investigating diet in more detail with the cohort. To close, do you have any final comments?

I feel pretty good at 85, and my ambition is to keep going as long as possible!

This interview has been edited and condensed.

Protecting a prized investment - ATP's Biorepository



Wendy Powell, Bioresource Advisor, Alberta's Tomorrow Project.

At this bank there are deposits and withdrawals, but the interest comes from researchers studying cancer and chronic disease. It's called the Alberta Cancer Research Biobank, and the precious currency it houses includes blood, urine and DNA samples from more than 30,000 ATP participants.

The biological specimens fill eighteen large freezers, set at -80ºC to preserve the integrity of urine and blood components like serum, plasma and red blood cells.

"Not only must the temperature be kept stable, but more than 90% of the specimens were frozen within two hours of being donated by our participants," Wendy Powell explains. As ATP's bioresource advisor, Powell is entrusted with protecting the biological samples to be used by researchers studying molecular changes that occur as cancer and chronic diseases take hold and progress.

"We follow the gold standards of biospecimen preservation and security, which include rapid freezing, alarms on our freezers in the event that the temperature rises, and backup generators in case of a power outage. We want to make sure that the samples are of the highest quality possible for researchers."

Along with detailed lifestyle information supplied by participants through ongoing surveys, the biospecimens will help reveal how and why a person's health may shift over time.

"Even many years after they're donated, blood products can tell the story of what was working well or not well in a person's body," Powell says. "Since we are following participants for decades, we can support research into how early biological changes are linked with eventual health outcomes. The findings might lead to earlier diagnosis and treatment."

Nevertheless, the blood and urine samples constitute a finite resource. To further protect this precious commodity, ATP is embarking on an ambitious plan to run basic tests on a portion of every blood sample donated. The results will be added to the already huge research platform, and can be provided more readily to researchers because data - unlike the biospecimens - can't run out.

"Instead of releasing specimens to a hundred scientists doing their own analyses, we can save them money, run these basic tests ourselves, control the conditions, and end up with an infinite resource for research.
"After so much time invested in creating this platform, we're all really excited to have the research community begin the real discoveries!"

“I don’t know of anything like it,” says lung cancer scientist of the ATP research platform

Photo Courtesy: Dr. Eric Bédard.

They’re called microRNAs, but there’s nothing tiny about the potential they hold for the early diagnosis of lung cancer. That’s according to thoracic surgeon Eric Bédard, who’s searching to find which of these minute molecules can be used as a warning sign for people at high risk of developing the disease.

Dr. Bédard and radiation oncologist Dr. Wilson Roa are comparing blood samples from cancer-free Alberta’s Tomorrow Project (ATP) participants against those from patients who have developed lung cancer. Their research team hopes to discover biological markers that change in the disease’s very early stages.

“We are able to get cancer and blood specimens from external tumour banks,” Bédard explains. “But one of the biggest challenges we have in research is finding high-quality samples from ‘regular people’ who are of the same age and known smoking history, with no cancer history. Our research is only possible with the samples from ATP participants.”

Bédard, an associate professor in the University of Alberta’s Division of Thoracic Surgery, says detecting signs of cancer sooner – before symptoms appear - will lead to earlier treatment for this number one cause of cancer death.

Currently, long-term smokers are screened for lung tissue changes using computed tomography, a detailed x-ray procedure also known as CT or CAT scanning. The protocol is based on research conducted by the US National Cancer Institute which found lower mortality rates when CT scans were used instead of simple chest x-rays. The better outcomes are attributed to the detection of tumours as small as half a centimetre in diameter, enabling earlier treatment. Still, CT technology is expensive, and there are more serious drawbacks, according to Bédard.

“CT scanning involves x-ray exposure which carries its own risks for future cancers, and the vast majority of its findings are false-positives, where a small mass that isn’t actually cancer is detected. This can cause a lot of unnecessary worry and anxiety for the patients and their families, as well as critical time for physicians to confirm or disprove that finding.”

Enter microscopic microRNAs. Only recognized as a distinct class of biomarker about fifteen years ago, these molecules appear to play an important role in regulating cell function and protein production. As such, they may act as a barometer of changes occurring within cells of human organs.

“Over the last year we’ve developed a list of microRNAs that may help us diagnose changes in the lungs of long-term smokers,” explains Bédard. “We’re narrowing the molecules down, and we need to assess them for accuracy. We can do this by comparing the microRNAs in tissue samples from lung cancer patients with blood samples from ATP participants of similar age and smoking history who have never had cancer.”

Bédard hopes that over the next ten or twenty years a blood test can be developed to detect changes in microRNAs, similar to simple blood sugar readings for people with Type II diabetes.

“The method we’re using now is laborious, expensive and kind of slow. Eventually, we hope a simple test can be created that is easy, cheap, accurate and readily available, to tell us whether lung cancer is brewing in people long before they start to show symptoms. Like the ‘tricorder’ in Star Trek, a device or test like this could determine who should go for the more expensive CT scan, especially in countries where there’s much less access to the more advanced technology.

“If we can create an easier test right at the point of care, that’s a huge win! There’s tremendous potential impact here. And there’s no question in my mind; we would not be able to do the research we’re doing without the ATP resource.”

Making it easier for researchers to find what they need

In the world of scientific investigation, comparing apples to apples is a major challenge. Some research platforms record tobacco use in pack-years, others in cigarettes smoked per day. One study might chart specific blood pressure readings, while another simply identifies participants as having high blood pressure or not. If a scientist wants to compare one region with another, how can they analyze such differing values?

The answer lies in data harmonization. The goal is to make research results similar enough that they can be reasonably compared for meaningful conclusions. Alberta’s Tomorrow Project (ATP) is part of a worldwide effort called the Cross-Cohort Harmonization Project for Tomorrow, designed to filter data between different studies for accurate comparison. Thirteen international cohorts involving more than 2.5 million participants are collaborating, to enable easier analysis of wide-ranging variables originating in diverse regions.

By participating in the project, ATP continues to ensure the wide-ranging research value of your health and lifestyle information.

Thanks for reading!

Alberta’s Tomorrow Project

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