The AMBER Report

ISSUE 25 DECEMBER 2025

SPECIAL POINTS OF INTEREST:

AMBER ANALYSES

INSIDE THIS ISSUE:

Check out our website!

www.amberstudy.com

Message from the Investigators

Hope you are doing well as we head into the holiday season!

In the 25th issue of the study newsletter, we highlight a number of analyses from the AMBER study that were presented at the 2025 Canadian Cancer Research Conference in Calgary, AB.

As data collection was completed in the fall of 2024, we are now able to start analyzing the data over the four time points.

In the past year, we have also been processing the blood samples that were collected at baseline, year one and year three. To start, we will be looking at changes in common blood biomarkers such as insulin and glucose.

We hope you have an enjoyable holiday season with family and friends. Best wishes for 2026!

2025 Canadian Cancer Research Conference

From November 2nd - 4th, the biennial Canadian Cancer Research Conference was held in Calgary, AB. The conference provides researchers, trainees, clinicians, decision-makers, and patients to hear about the latest developments in Canadian cancer research.

The AMBER Study was well represented at the conference with information being presented on a variety of topics such as a sleep, health related fitness, treatment outcomes and upper limb morbidity.

Our own Dr. Christine Friedenreich, was awarded the Philip E. Branton Exceptional Leadership in Cancer Research Award. This award recognizes the transformative and international impact of her research on the role of physical activity in the fields of cancer prevention and survivorship. Her research has informed national and international public health guidelines, polices and initiatives. Congratulations Dr. Friedenreich!

Associations of Sleep with Quality of Life among Women with Newly Diagnosed Breast Cancer

Sleep problems are among the most common and persistent concerns in breast cancer survivorship, affecting >50% of individuals in this population. Although sleep issues are linked with poor quality of life, few studies have accounted for depression in this relationship.

We examined whether depressive symptoms affect the relationship between sleep and quality of life in the AMBER cohort.

Key Findings:

- 43% of breast cancer survivors reported poor sleep quality and 10.5% reported clinically meaningful depressive symptoms.
- Poor sleep quality was related to lower physical and mental well-being. However, when considering those individuals with depressive symptoms the effect of this observation decreased.

To further understand the relationship between sleep and quality of life, future analyses will look at the information collected at year one, year three and year five.

The Theory of Planned Behavior's Prediction of Physical Activity in Newly Diagnosed Women with Breast Cancer

The theory of planned behavior (TPB) is a psychological theory to predict an individual's intention to perform a behaviour. It is influenced by a person's attitude toward the behavior, subjective norms (social pressure) and perceived behavioral control. This theory has been used to understand physical activity, however, few studies have looked at its ability to predict a person's physical activity. Based on data collected at baseline, we evaluated the prediction of physical activity levels at one year post cancer diagnosis in the AMBER cohort.

Key Findings:

- Positive attitudes and greater perceived behavioral control were associated with greater intentions to do light physical activity at diagnosis, however, this did not predict levels of light-intensity physical activity at one year.
- Greater intentions to complete moderate-vigorous intensity physical activity (MVPA) at diagnosis were related to greater MVPA at one year.

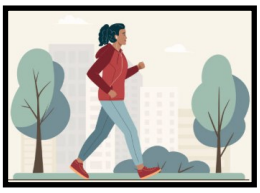
The analyses showed that TPB variables were limited in their ability to predict physical activity levels one year after a breast cancer diagnosis. These findings highlight the need to explore additional factors that may impact long-term physical activity among women newly diagnosed with breast cancer, including how breast cancer treatment may modify physical activity intentions and behavior.

Associations Between Breast Cancer Treatments and One-Year Changes in Health Related Fitness

Cancer treatments negatively affect health-related fitness (HRF), which can effect the ability to tolerate treatment, recover and deal with long-term health outcomes. Few studies have looked at the different cancer treatments and their effects on HRF. We examined the relationship of different treatment types, regimens, and combinations with HRF changes at one year in the AMBER cohort.

Key Findings:

- Women who received chemotherapy experienced greater declines in lower body endurance, total lean mass, bone mineral density and bone mineral content.
- Larger declines in cardiorespiratory fitness were seen in older woman who received chemotherapy and particularly in those who received anthracycline chemotherapy.
- Other treatment types were not clearly related to changes in HRF.



Chemotherapy, either alone or in combination with other treatments, had the largest and broadest negative impact on HRF at one year follow up. Understanding how different breast cancer treatments relate to physical fitness changes can help guide the development of tailored exercise programs.

Prevalence and Natural Progression of Upper Limb Morbidity: Three-year findings from AMBER

Breast cancer treatment frequently results in upper limb morbidity, with effects reported to last more than 10 years. Impairments include arm/shoulder pain, lymphedema, axillary web syndrome (AWS), limited shoulder mobility, upper limb weakness and poorer upper limb function. We explored the occurrence and natural progression of upper limb morbidity from baseline to year three in the AMBER cohort.

Key Findings:

- Upper limb morbidity was identified in 54% of participants after surgery and was associated with poorer upper limb function and higher pain.
- At three years, 30% of participants presented with upper limb morbidity.
- Lymphedema at three years was seen in 5% of participants who had a sentinel lymph node biopsy and in 14% of those who had an axillary lymph node dissection.

These findings reinforce the need for early, proactive surveillance and rehabilitation to address long-term upper limb dysfunction after breast cancer surgery. Having structured exercise and education programs in oncology and community settings could help mitigate chronic upper limb impairment and improve quality of life.

Alberta Cancer Foundation

Website: **albertacancer.ca**

The Alberta Cancer Foundation (ACF) is the official fundraising partner for all cancer centres across the province. They exist to create more hope and more moments for all Albertans facing cancer with a focus on bringing the best cancer care and research possible to the province.

This is done by inspiring the community to donate to innovation in detection, treatment and care right in our own background. In 2023 - 2024, ACF injected over $27.5 million into projects and initiatives to advance cancer care and research in the province from early detection to survivorship.

One of the largest fundraisers is the annual Enbridge Tour Alberta which takes place next year from July 18 - 19, 2026. This two-day, cycling event is more than a fundraiser, it's a community of hope and determination with cyclists completing distances of 65, 100 or 150 km. Since 2008, the event has raised over $110 million dollars for the ACF! For more information check out - **More Hope - Tour Alberta for Cancer**

The Leap magazine is the ACF's biannual publication that highlights inspirational Albertans touched by cancer and the world class innovations in research, treatment and care that are making a difference for Albertans, and their families, facing cancer.

The Fall/Winter 2025 issue celebrates 40 years of progress for the foundation and highlights, for example, the power of data to improve the patient experience, deepen our understanding of how tumours behave and create efficiencies in the health care system.

Click below to read the latest issue of the Leap magazine

Leap Magazine - Alberta Cancer Foundation

AMBER Study Contact Information

Name	Position	Location	Telephone	E-mail
Dr. Christine Friedenreich	Principal Investigator	Calgary	(587) 231-3884	christine.friedenreich@cancercarealberta.ca
Dr. Kerry Courneya	Principal Investigator	Edmonton	(780) 492-1031	kerry.courneya@ualberta.ca
Leanne Dickau	Study Coordinator	Calgary	(587) 231-3707	leanne.dickau@cancercarealberta..ca
AMBER Study	General Inquiries	Both	(587) 231-3884	amberstudy@cancercarealberta.ca