

“We cannot say with absolute certainty that if women reduce their waist-to-hip ratio it will improve their chances of survival. However, there are other benefits to losing weight, such as lower risks of heart disease and diabetes,” explains Borugian. “This is the first Canadian study to link waist-to-hip ratio and breast cancer mortality and confirms similar studies in the U.S.”

These results are the first of a two-part study. Researchers will also analyze the women’s blood samples to measure blood insulin levels, and diet and activity data to determine how these factors affect mortality rates of women diagnosed with breast cancer. A high waist-to-hip ratio is known to be a marker for insulin resistance, which stimulates the production of estrogen. The results will be available in 2004.

The study was funded by the Canadian Breast Cancer Foundation (BC & Yukon Chapter) and the Lions Gate Healthcare Research Foundation. The Canadian Cancer Society provided support in the early stage of the research.

An estimated 2,700 women in B.C. are expected to develop breast cancer in 2003 (21,100 nation-wide). An estimated 5,300 women (530 in B.C.) will die from the disease this year.

*The BC Cancer Agency, a part of the Provincial Health Services Authority, is committed to reducing the incidence of cancer, reducing the mortality from cancer, and improving the quality of life of those living with cancer. It provides a comprehensive cancer control program for the people of British Columbia by working with community partners to deliver a range of oncology services, including prevention, early detection, diagnosis and treatment, research, education, supportive care, rehabilitation and palliative care. The BC Cancer Research Centre conducts research into the causes and cures for cancer.*

**For more information, please contact:**

Papinder Rehncy  
BC Cancer Agency Public Relations  
(604) 877-6000, local 2378  
e:mail: [prehncy@bccancer.bc.ca](mailto:prehncy@bccancer.bc.ca)



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## **Above average waist-to-hip ratio associated with increased breast cancer mortality for post-menopausal women with estrogen receptor positive tumours**

Post-menopausal women with high waist-to-hip ratios and estrogen receptor positive tumours have an increased risk of mortality from breast cancer, according to a study to be published in the American Journal of Epidemiology this week.

Researchers at the BC Cancer Agency, together with colleagues at University of British Columbia and University of Washington, followed 586 pre-menopausal and post-menopausal women diagnosed with breast cancer in 1991-1992 at the BC Cancer Agency's Vancouver Centre over a 10-year period. The women were diagnosed at various stages of disease: ductal carcinoma in situ (cancer confined to the breast milk ducts), stage I, II or III cancer.

Women were classified as having a low, medium, medium-high and high waist-to-hip ratio. Waist-to-hip ratio was calculated by dividing the women's waist size by their hip circumference, and attaining a ratio. A ratio of .8 was considered average.

They found that above average body weight on its own wasn't a strong predictor of breast cancer mortality, but a high waist-to-hip ratio (having abdominal obesity or being apple-shaped) was a strong predictor of mortality for post-menopausal women.

"We found that where the weight was distributed was more important than overall body size," says the paper's author Dr. Marilyn Borugian.

Of the 586 women, 112 died in the ten-year period from breast cancer. While no link was found for waist-to-hip ratio among women who developed pre-menopausal breast cancer, researchers discovered that for every one-point increase in the ratio – for example .8 to .9 – post-menopausal women had a 40 percent greater risk of mortality. Post-menopausal women in the highest waist-to-hip ratio group had a three times greater risk than post-menopausal women in the lowest waist-to-hip ratio group of dying from breast cancer in the first 10 years after diagnosis.

Researchers also found the greater mortality rates associated with high waist-to-hip ratio only applied to those post-menopausal women with estrogen receptor positive tumours (tumours which are hormonally-driven). These women were found to have a 60 percent greater mortality for each one-point increase in the ratio, than post-menopausal women without estrogen receptor positive tumours.

While researchers acknowledge the results need to be confirmed by larger studies, they are excited about being able to provide women with information they can use in the fight against breast cancer.

"Our purpose in conducting the study was to be able to provide women and healthcare providers with information about modifiable factors that can affect breast cancer survival," says Borugian.

"Women are always asking us, what can we do to increase our odds of survival. And, clinicians are looking for prognostic indicators – for instance, who is more likely to relapse and how we prevent that from happening. Waist-to-hip ratio may help clinicians identify high-risk breast cancer patients at diagnosis, and develop strategies to help improve survival rates.

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