

Researchers hope to determine if link exists between high-fat diet, breast cancer

Olga Lechky

In Brief

ONTARIO RESEARCHERS HOPE A MAJOR STUDY will determine conclusively if a link exists between high-fat diets and breast cancer. The study will involve about 4700 women in 4 centres. Some researchers think there is a link because the incidence for the disease is much higher in North America and northern Europe, where high-fat diets are common, than in Japan, where low-fat diets prevail. "At some point between now and 2005 we'll definitely know [the answer]," says Dr. Norman Boyd, the principal investigator.

En bref

DES CHERCHEURS DE L'ONTARIO ESPÈRENT QU'UNE ÉTUDE D'ENVERGURE permettra d'établir de façon concluante s'il existe un lien entre l'alimentation riche en gras et le cancer du sein. Environ 4700 femmes de 4 centres participeront à l'étude. Des chercheurs pensent qu'il y a un rapport parce que l'incidence de la maladie est beaucoup plus élevée en Amérique du Nord et dans le nord de l'Europe, où les alimentations riches en gras sont communes, qu'au Japon, où l'alimentation est surtout faible en gras. «Nous connaissons la réponse avec certitude d'ici à 2005», affirme le principal chercheur, le Dr Norman Boyd.

A major Canadian study has been designed to show conclusively whether there is a causal relationship between a high-fat diet and the development of breast cancer, the most common cancer affecting women in the Western world and the leading cause of cancer deaths among North American women.

"At some point between now and 2005 we'll definitely know," says Dr. Norman Boyd, principal investigator for the multicentre trial and head of the Division of Epidemiology and Statistics at the Ontario Cancer Institute in Toronto.

"If it turns out to be true that diet plays a role in the development of breast cancer, it could really make a big difference," he said. "Although we have epidemiological data that show breast cancer can be prevented, we don't now have any practical means of preventing it."

The most compelling evidence that a high-fat diet is closely linked to the development of breast cancer lies in the large variation in incidence around the world, with a fivefold difference becoming apparent when North America and northern Europe are compared with Asia. "We know that these differences are not due to inherited differences between North Americans, northern Europeans and Asians," Boyd explained, "because when people migrate from Japan to North America their rate changes quite dramatically. It's been observed in Japanese migrants that the rate jumps by a factor of 3. Among the daughters of migrants the change is even greater — there's about a fivefold increase in the rate. The daughters of Japanese migrants now have rates that are very close to those of the Caucasian population."

It is believed that with migration, Asians over time switch from a traditional low-fat diet that is based largely on rice, vegetables and fish to a more typically North American diet that relies heavily on red meat and dairy products. Some researchers suspect that this higher fat intake is what raises the breast cancer rate



Features

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dramatically in Japanese immigrants in a relatively short time.

Supporting these epidemiologic data are animal studies showing that laboratory mice fed high-fat diets develop mammary cancers at a significantly greater rate than control animals maintained on a low-fat diet.

However, this neat picture falls apart when the results of numerous studies done within a country or region of North America or northern Europe are examined. The vast majority of these studies, whether case-control, cohort or correlational, have shown no relationship between high fat consumption and the development of breast cancer.

"This can be viewed in 2 ways," said Boyd. "One view is that the negative data are correct and that there is in effect no relation between diet and breast cancer. This is the view of the majority of researchers. The other view, which I and a number of colleagues hold, is that the negative data are predictably negative. If you take the amount of variation [in fat intake] that exists around the world and then look at the amount of variation there is in a country like Canada, the range we have is tiny compared with the variation around the world. So we believe [there are] negative data [because there is] too little variation in diet in North America or northern Europe.

"There's also the difficulty of accurately measuring fat intake when studies rely on subjects' memory of what they have eaten. So those 2 things combined lead one to expect that there wouldn't be much of a positive correlation."

According to Boyd, the only way to determine definitively whether high-fat diets are positively correlated with an increased risk of breast cancer is to conduct an intervention study that examines the effects of fat intake over a broad range and measures fat intake prospectively. The Diet and Breast Cancer Intervention Study aims to overcome methodologic problems found in previous studies and to provide a conclusive answer to the longstanding debate.

Supported by the Canadian Breast Cancer Research Initiative and the Ontario Ministry of Health, the study currently is enrolling women who are considered on the basis of recent mammography results to have a higher-than-average risk of developing breast cancer.

Approximately 4700 women will be enrolled in 4 participating centres in Ontario. They will be randomly assigned to either a very-low-fat-diet group — only 15% of daily calories provided by fat — or will make no changes to their usual diet. This means they will continue to get 30–40% of their daily calories from fat, a range that is typical for most Ontarians. Women already on fat-restricted diets will not be accepted as study subjects.

In addition to being screened for breast cancer risk factors, participants will give a menstrual and pregnancy history and will be questioned about alcohol consumption and cigarette smoking.

A dietitian will provide advice and recipes to the women assigned to the low-fat, high-carbohydrate diet. All participants will record what and how much they eat for 3 days every month. These records will be reviewed by dietitians before being submitted for a detailed nutritional analysis. Participants also will have blood samples taken periodically to measure the effects of diet on cholesterol and hormonal levels; a mammogram will be done at least once every 2 years to detect changes in breast tissue.

"I think we'll be in a good position to assess not just the role of diet but also the role of quite a number of other things in relation to breast cancer," Boyd observed. "The primary analysis will be to see if eating a low-fat, high-fibre diet reduces the risk of developing breast cancer. The secondary analysis will be to look at other constituents in the diet, such as anti-oxidant vitamins, for example, to see what role they may have played." ?

For further information or to refer patients to the study, physicians should call the participating centres:

- Hamilton: 905 389-4988
- London: 519 685-8668
- Toronto: 416 506-0983
- Windsor: 519 977-9997



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