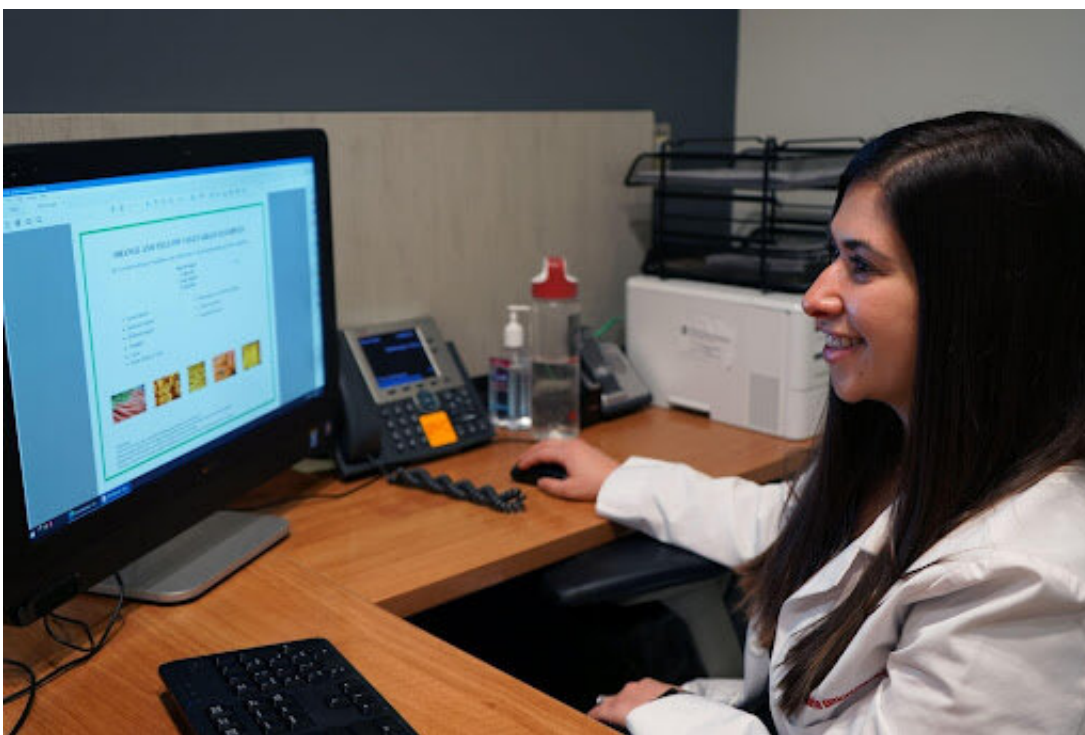


Remote dietary intervention feasible, may reduce chronic fatigue for lymphoma survivors

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Registered dietitian Anna Maria Bittoni meets virtually with a cancer survivor to explain the benefits of different foods. The pilot study at The Ohio State University Comprehensive Cancer Center—Arthur G. James Cancer Hospital and Richard J. Solove Research Institute provides education, guidance and sample recipes to cancer survivors to help improve overall diet and reduce chronic fatigue. Credit: The Ohio State University Comprehensive Cancer Center

Intentional modifications to diet are being investigated as a strategy to reduce chronic cancer-related fatigue, according to new data published today in the journal *Nutrition & Cancer* by researchers with The Ohio State University Comprehensive Cancer Center (OSUCCC—James) and The Ohio State University Wexner Medical Center.

Chronic [fatigue](#) is the No. 1 lingering side effect of [cancer](#) treatment among all cancer survivors. Research has shown that persistent fatigue has been linked to depression, anxiety, and an overall reduced quality of life.

"This is especially prevalent for [lymphoma patients](#), where up to 60% of survivors specifically report fatigue that lasts beyond treatment completion," said Tonya Orchard, lead author of the study and an associate professor in the College of Education and Human Ecology. "We believe that there are some foods rich in specific nutrients that may help reduce inflammation in the body and help improve fatigue."

For this study, researchers wanted to know if it was feasible to recruit and retain lymphoma survivors in a remotely delivered nutrition counseling intervention that focused on nutrient-rich whole foods to improve fatigue symptoms. The Ohio State research team recruited 10 patients with diffuse large B-cell lymphoma to participate in a [pilot study](#) of a 12-week [dietary intervention](#) to reduce fatigue and improve overall diet quality.

Previously published data suggest that dietary interventions with intentional focus on increasing levels of lycopene and other carotenoids from colorful foods, certain B vitamins and omega 3 fatty acids (obtained from whole foods—meaning not from pills or [dietary supplements](#)) can result in meaningful change that increases quality of life.

Study methods and results For this pilot study, all participants had completed chemotherapy and been in remission for at least two years.

Patients received one-on-one nutrition counseling from a registered dietitian nutritionist over four weekly and four bi-weekly sessions. Participants were asked to incorporate into their diet whole grains, vegetables, fruit, and fatty fish or plant-based foods with high levels of dietary omega-3 polyunsaturated fatty acid (n-3 PUFA).

Participants were given goals for the various groups and could choose whichever specific foods they liked. The overall goal was to improve diet quality. Specific [food](#) goals included: eating at least one high vitamin C fruit a day; one yellow or orange vegetable a day; one tomato serving a day; one leafy green serving a day; 3 servings of whole grains a day; and 2 servings of omega-3 fatty acid rich foods a day, whether plant or seafood-based.

The dietary pattern was based on previously published research from one of the study co-investigator, Dr. Suzanna Zick, suggesting that foods rich in carotenoids, lycopene, certain B vitamins and omega 3 [fatty acids](#) improved fatigue in breast cancer survivors.

"It may be the synergistic effect of the nutrient-rich foods that create healthful changes in our bodies long term. There is much that we don't understand about this process yet," said Anna Maria Bittoni, a dietitian with the OSUCCC—James and study co-author.

Participants were given a dietary intervention booklet with specific food lists to fit each category and suggested ways to use them in sample recipes. Dietitians then worked with cancer survivors to provide counseling on making sustainable dietary changes and addressing potential barriers to implementation of these dietary changes, such as taste preferences, cooking skills and time limitations. The intervention

was tailored to the individual to address both dietary preferences and behavioral barriers.

Results of the study suggest that this remote "telehealth" format was feasible and acceptable for this group of lymphoma survivors. Researchers were able to retain 90% of the participants in the 12-week intervention and adherence to study goals was high. By the end of the intervention, participants were able to meet goals for intake of specific food groups an average of 4.8-6.1 days of the week.



Tonya Orchard and Anna Maria Bittoni discuss the results of a pilot study of patients from The Ohio State University Comprehensive Cancer Center—Arthur G. James Cancer Hospital and Richard J. Solove Research Institute to help cancer survivors combat chronic fatigue through improved diet quality. Credit: The Ohio State University Comprehensive Cancer Center

The vast majority of study participants were able to meet targeted food goals by study completion. Specifically, study participants:

- Increased whole fruit consumption by 1.28 cups per day, with consumption of non-juice fruit including citrus, melon and berries increasing by .83 cups/per day.
- Vegetable intake increased significantly from 2.05 cups per day to 3.76 cups per day.
- Consumption of omega-3 PUFA fish increased from 1.76 serving per day to 3.75 servings per day.
- Whole grain consumption also increased from 1.2 servings per day at baseline to 3.65 daily.

The pilot study also showed that participants significantly increased their Healthy Eating Index 2015 score, which is an established metric for an overall healthful eating pattern based on U.S. Department of Agriculture dietary recommendations.

Self-reported fatigue, as measured through the PROMIS (patient reported outcome measure information system) fatigue score, was significantly reduced after the intervention. Researchers note that this is encouraging preliminary data, suggesting that the dietary intervention may be effective in reducing cancer related fatigue. Because the study had no control group, however, additional research is needed to test this.

"More patients are surviving and living well beyond cancer. As we look at the bigger picture of survivorship, it is so important that we acknowledge and address long-term side effects of cancer and cancer treatment, such as [chronic fatigue](#). Diet is an accessible and realistic opportunity to make a positive impact on quality of life for [cancer survivors](#), and is worthy of further investigation," said Orchard.

First author of the study manuscript is registered dietitian nutritionist,

Kellie Weinhold. Co-authors include OSU human nutrition student, Sarah Light and coinvestigator, Dr. Suzanna Zick. Study collaborators include registered dietitian nutritionist, Emily Botello and OSUCCC-James physicians Dr. Kami Maddocks and Dr. Beth Christian.

More information: A remote whole food dietary intervention to reduce fatigue and improve diet quality in lymphoma survivors: results of a feasibility pilot study, *Nutrition and Cancer* (2023).

Provided by Ohio State University Medical Center

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