

Stress management for breast cancer patients may affect disease course

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A team of researchers led by Michael H. Antoni, director of the Center for Psycho-Oncology Research at the University of Miami (UM) has shown that a stress management program tailored to women with breast cancer can alter tumor-promoting processes at the molecular level. The new study recently published in the journal *Biological Psychiatry* is one of the first to link psychological intervention with genetic expression in cancer patients.

According to the study, the group-based Cognitive-Behavioral [Stress Management](#) (CBSM) intervention designed by the researchers affects which genes in the cells of the immune system are turned on and off, in ways that may facilitate better recovery during treatment for breast cancer, explains Antoni, professor of Psychology in the College of Arts and Sciences, and professor of Psychiatry and Behavioral Sciences and program leader of Biobehavioral Oncology at the Sylvester Comprehensive Cancer Center at the University of Miami Miller School of Medicine.

"For the women in the CBSM groups, there was better psychological adaptation to the whole process of going through treatment for breast cancer and there were physiological changes that indicated that the women were recovering better," Antoni says. "The results suggest that the stress management intervention mitigates the influence of the stress of [cancer treatment](#) and promotes recovery over the first year."

Previous research has shown that during times of adversity, our nervous

and endocrine systems send signals to the immune system, which defends us from disease. In response, our body activates specific genes inside [immune cells](#) called [white blood cells](#) or leukocytes, Antoni explains.

"For the women that participated in the intervention groups, the genes that signal the production of molecules associated with a healthy immune response, such as type I interferon were up-regulated—meaning they were producing more of these substances, compared to levels seen in the control group," Antoni says. "At the same time, the genes responsible for the production of substances involved in cancer progression, such as pro-inflammatory cytokines, chemokines and matrix metalloproteinases were down-regulated."

CBSM is a 10-week group-based program developed at UM that combines relaxation, imagery and deep breathing, along with cognitive behavior therapy, which is designed to help patients reduce bodily tension, change the way they deal with intrusive stressful thoughts, decrease negative moods, and improve their interpersonal communication skills. In the study, 79 women undergoing primary treatment for stage 0-III breast cancer were randomized into a 10 week CBSM program or a psychoeducational control group in the weeks following surgery. Six month and 12-month follow up assessments were conducted.

"You essentially have this timeframe in a woman's life where she is getting diagnosed with [breast cancer](#), followed by surgery, then chemotherapy or radiation, and it's very stressful," Antoni says. "This can be an emotionally and physically exhausting period offering little opportunity for recovery. If stress affects the immune system in a negative way, then their recovery could be slowed down and those patients taking longer to recover may be at risk for poorer health outcomes. Conversely, if stress management intervention can reduce the

impact of stress on the [immune system](#) then recovery may be hastened."

The research team plans to follow the women in this cohort to see if CBSM intervention and its effects on leukocyte gene expression are predictive of reoccurrence and/or long term health outcomes.

Provided by University of Miami

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