Can Sleep Protect Against Cancer-Related Aging?

There is mounting evidence that poorer sleep quality is associated with poorer health outcomes, including cancer-related aging. Researchers have found that sleep disturbances are common among cancer patients and are associated with increased risk of cancer recurrence and mortality.

A recent study published in the journal *JAMA Psychiatry* assessed the potential benefits of sleep education therapy (SET) in preventing depression in older adults with insomnia. The study enrolled 291 older adults with insomnia from the UCLA area and randomized them into two treatment groups: one group received SET, which included education about the relationship between sleep and physical and mental health, tips for managing insomnia, and relaxation techniques, while the other group received standard treatment for insomnia.

After eight weeks of treatment, the SET group showed significantly greater improvement in sleep quality and mood compared to the standard treatment group. The SET group also had a lower risk of depression, as measured by the Geriatric Depression Scale (GDS-15).

The study highlights the importance of sleep education and highlights the potential benefits of SET in promoting better sleep and reducing the risk of depression in older adults with insomnia. Further research is needed to confirm these findings and to explore the potential benefits of SET in preventing other health outcomes associated with cancer-related aging.
Reducing Depressive Symptoms in Breast Cancer Survivors

Younger women—those 50 years of age and under—have higher levels of depression and other symptoms after breast cancer diagnosis and treatment than their older counterparts, in addition to a greater risk of poor outcomes, including cancer recurrence. “It is much more disruptive and stressful to have to deal with a cancer diagnosis when you are building a family, a career, and navigating these other developmental challenges,” explains Cousins Center researcher Julienne Bower, whose research is focused on mind–body interactions among individuals facing chronic stressors, including cancer diagnoses.

As part of her continuing effort to understand and improve the quality of life in these women, Bower, a Professor of Psychology and Psychiatry and Biobehavioral Sciences at UCLA, and her colleagues recently conducted the multi-site Pathways to Wellness study, an evaluation of the effectiveness of two group-based behavioral interventions, survivorship education (SE) and mindful awareness practices (MAPs), in younger breast cancer survivors with elevated depressive symptoms. The survivorship education program focused on topics relevant for younger breast cancer survivors, including medical management and quality of care after treatment; relationships and work–life balance; body image, sexuality and fertility; and energy balance, nutrition, and physical activity. The MAPs intervention was based on a program developed at the UCLA Mindful Awareness Research Center (MARc), a part of the Cousins Center, that teaches individuals to understand basic principles of mindfulness, develop a personal meditation practice, and to apply the principles in their daily life. In previous work, Bower and colleagues found that MAPs participants showed reductions in symptoms of depression. However, the women in the MAPs group also showed improvements in fatigue, insomnia, and vasomotor symptoms, i.e., hot flashes and night sweats. In addition, the MAPs program had beneficial effects on cancer-related stress, positive affect and meaning/peace in life, and inflammatory activity relative to controls.

With the benefits of MAPs now becoming clear, Bower and colleagues next plan to test versions of the program that can be delivered remotely, which will significantly expand the reach of the intervention. These will be evaluated through a large nationwide network of cancer centers and community clinics. “There is tremendous value to the women being there in-person, but the pandemic has made us all a lot more comfortable with having interactions on line, and this will give us a much larger and more diverse patient population,” Bower says. She and her team plan to test a Zoom-based version of the MAPs intervention, and are also working with a technology company to develop a mobile, self-directed version of the program for use on smart phones and computers. “We are very excited about providing the tools of the MAPs program to women across the country who are dealing with cancer diagnosis and treatment at a relatively young age. Our goal is to promote a long and healthy survivorship for younger women and really for all cancer survivors.”

The Immunological Impact of Isolation

The “shelter in place” policies enacted in the early days of the COVID-19 pandemic were vital for slowing the spread of infection. But a new study from the Cousins Center finds a surprising irony: They may have left us less able to fight off the virus when we were exposed.

Steve Cole, a Professor of Psychiatry and Biobehavioral Sciences and Medicine at UCLA, and his colleagues simulated shelter-in-place protocols by moving 21 adult male rhesus macaques from communal living in large outdoor colonies to individual indoor shelters. After just 48 hours alone, the animals’ circulating immune cells declined by 30 to 50 percent. The animals also showed a striking decrease in the activity of a suite of antiviral genes called the Type 1 interferon system, as well as an increase in “classical monocytes” that play a key role in inflammation. “Reduced antiviral activity and increased inflammation are basically a recipe for severe COVID,” says Cole. The effects abated within four weeks after the macaques were returned to their regular communal housing colony.

As expected, CBT-I was also more effective in the treatment of insomnia than SET. Nearly twice as many persons who received CBT-I had a remission of their insomnia as compared to those receiving SET. Further, remission of insomnia over the 36 months was more likely to occur in those who received CBT-I as compared to SET.

The editors of JAMA Psychiatry applauded this study as being “a completely new and innovative way of increasing the effect of preventive interventions on the disease burden of depression.”

In addition, because treatment focused on insomnia without using the word “depression,” the stigma associated with depression treatment was avoided, meaning that older adults would be more likely to be interested in receiving this treatment to prevent depression and benefits would more broadly impact the community.

Irwin forecasts that “screening for insomnia in older adults and wide delivery of CBT-I-based treatment for insomnia could substantially advance public health efforts to treat insomnia and prevent depression in this vulnerable older adult population.”

Preventing Depression in Older Adults with Insomnia -- continued from page 1

Those in the CBT-I group, as compared to SET, were two times less likely to develop depression during the three-year follow-up period. In addition, those who had received CBT-I and sustained remission of insomnia were nearly seven times less likely to have depression, as compared to those who received SET and did not have an insomnia remission; this finding indicates that sustained treatment of insomnia was critical in preventing depression. In short, treatment of insomnia prevented the occurrence of depression in older adults who had insomnia, but were not depressed.

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Later, the researchers returned the animals to individual housing, but this time with a companion—a previously unknown juvenile macaque. This simple act of taking care of a young partner blocked the decline in antiviral responses and increased inflammation.

According to Cole, the findings, published in the Proceedings of the National Academy of Sciences, make sense from a resource-conservation standpoint. When we are not around other individuals who could pass on new infections, our bodies reduce production of the cellular and molecular defenses that respond to such threats.

“When we are not ‘close’ to others of our own species, the risk of viral infection declines, but there’s another angle we need to take into account, which is what the immune system does with the ‘resources’ that are being recovered,” Cole says. When we feel threatened or uncertain—which is how our brain’s interprets social isolation—our immune system pivots away from the antiviral immune responses that are needed in times of close social interaction, and instead ramps up inflammatory immune responses that aid wound healing.

“That made sense in our hunter-gatherer history when the things that threaten us and experiences of isolation could routinely increase the risk of physical injury,” Cole explains. “In the modern world, that equation no longer holds, but our nervous and immune system is still programmed to execute that shut-off. Unfortunately, this chronic inflammation serves as a kind of molecular fertilizer for the development of chronic diseases such as cancer, heart disease, and neurodegenerative diseases. That makes it more important than ever that we maintain a good sense of social support and community to help counteract the effects of modern life on immune system resource-shifting.”

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