

Indoor Hydroponic Gardening Improves Mental Health and Quality of Life for Cancer Patients

A study found significant improvements in well-being and diet through gardening, highlighting the potential for broader health benefits.

November 13, 2025 By Ann Kellett and Texas A&M University

Indoor hydroponic gardening — a method of growing plants using nutrient-rich water instead of soil — could help cancer patients develop better mental health, eat a healthier diet and enjoy a better overall quality of life.

These findings come from a pilot [case-crossover study](#) led by researchers at the [Texas A&M University School of Public Health](#). The study was conducted with cancer patients at the Houston Methodist Cancer Center from October 2022 to September 2023, and the results were published in [Frontiers in Public Health](#).

“The [health benefits](#) of being outdoors are well documented, and [cancer patients who garden](#) have less pain, need fewer pain medications and are less likely to have a recurrence,” said [Taehyun Roh](#), a faculty member with the Department of Epidemiology and Biostatistics who led the study. “Since many patients don’t have access to a traditional garden or are physically unable to garden, we wanted to explore whether an easy-to-use indoor hydroponic system could offer similar benefits.”

Participants’ average age was 57 years, 47% were men, 53% were women, 59% were white and 31% were Hispanic. Most had at least some college education and private health insurance.

“Interestingly, more than 90% said they had a yard or space for a garden, but the majority said they did not garden,” Roh said.

Participants were given [AeroGarden](#) brand hydroponic kits that contained a growing container, LED grow light, liquid plant food nutrients and 12 pod seed kits for heirloom salad greens. They planted the seeds and oversaw cultivation and harvesting over an eight-week study period.

Researchers measured participants’ mental well-being, psychological distress, quality of life, fruit and vegetable intake and pain management at baseline, then again four and eight weeks later

using multiple validated surveys.

By the end of the study, researchers observed several encouraging and statistically significant improvements.

Mental well-being steadily increased over the eight weeks, and depression levels dropped significantly. Participants also reported a better overall quality of life as early as week four, with emotional and social functioning improving by week eight. In addition, appetite loss declined, and many participants said they were eating more fruits and vegetables.

“The improvements observed may be explained by gardening’s ability to engage the senses, reduce stress through autonomic nervous system modulation and foster a sense of responsibility and control,” Roh said.

Roh noted that although the results are promising, the study has limitations typical of a pilot project, including a small sample size, short study duration and no control group. Larger-scale studies are needed to confirm the findings.

“Even so, indoor hydroponic gardening shows real potential as a supportive intervention in cancer care — and perhaps beyond,” Roh said. “We hope that these findings could extend to all people who lack access to conventional gardening or to nature, enabling them to increase their overall well-being.”

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Other contributors to the study included School of Public Health graduate students Anisha Aggarwal, Nishat Tasnim Hasan and Nusrat Fahmida, along with Charles Hall, Ellison Chair of International Floriculture and professor with the Texas A&M College of Agriculture and Life Sciences, and colleagues from Houston Methodist.

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