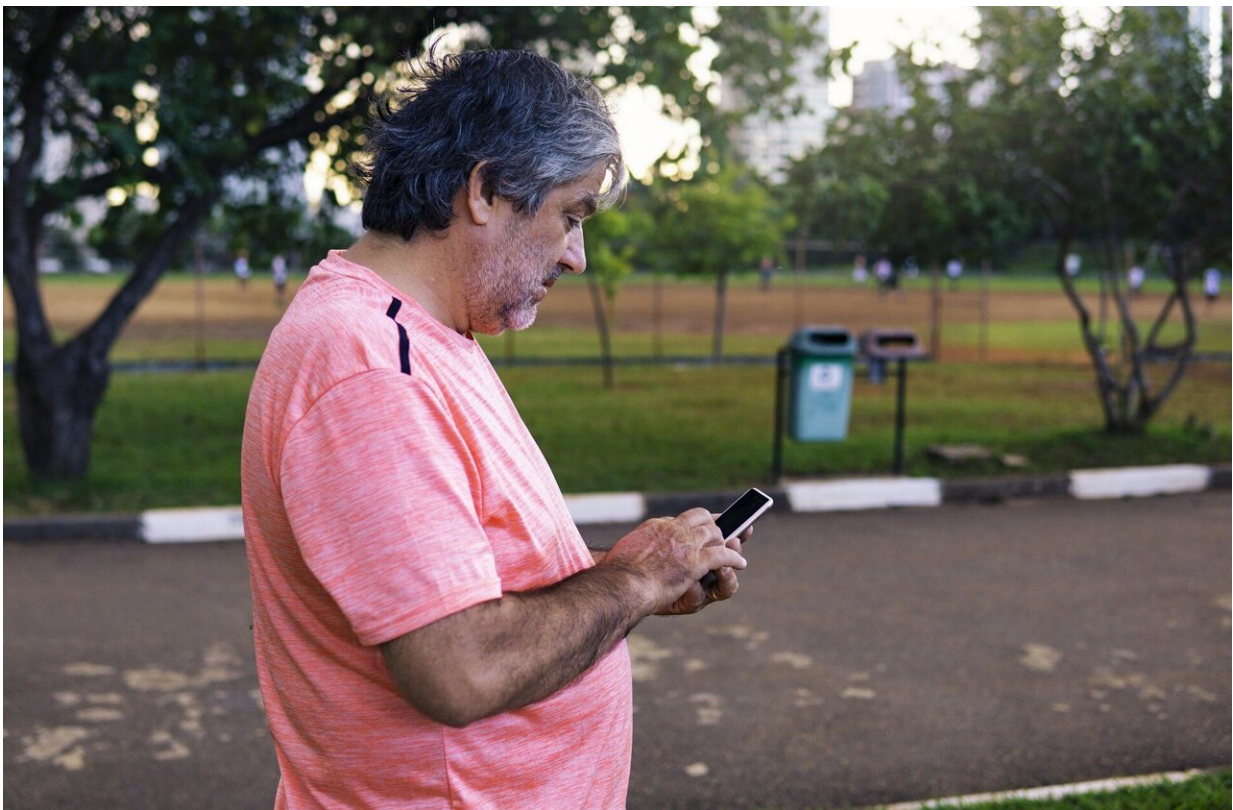


Trials reveal that internet-based conversations help sustain brain function in older adults

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Social isolation has been linked to faster cognitive decline and an increased risk of developing dementia, although the biological

mechanisms of this association are not well understood.

Now a new clinical trial by a team including investigators from Massachusetts General Hospital indicates that conversational interactions—a core component of human connections—can stimulate different brain functions among socially isolated [older adults](#), even when the interactions are Internet-based. The [results](#) are published in *The Gerontologist*.

The research comes at an important time, as earlier last year the United States Surgeon General released a Surgeon General Advisory calling attention to the public health crisis of loneliness, isolation, and lack of connection.

"We initiated the first proof of concept behavioral intervention study in 2010, nearly a decade prior to the COVID-19 pandemic drawing attention to the detrimental effects of social isolation on our overall health. Over the past 15 years, we have conducted a series of intervention trials, hypothesizing that stimulation from engaging conversations could enhance our brain reserve and resiliency. The findings published here are the results from the most recently completed intervention trial," explained lead author Hiroko H. Dodge, Ph.D., the principal investigator of the trials.

Dr. Dodge serves as the Director of Research Analytics at the recently inaugurated Interdisciplinary Brain Center at Massachusetts General Hospital and is a faculty member of the Harvard Medical School.

The 186-participant phase 2 randomized trial, called I-CONNECT, used the internet and webcams to allow for conversational interactions between trained interviewers and socially isolated individuals aged 75 years and older who had normal cognition or mild cognitive impairment.

Investigators rotated [conversation](#) partners assigned to each participant to enhance the novelty of the experience, provided user-friendly devices allowing participants without any internet/webcam experience to easily engage in video-based conversations, and encouraged conversations with standardized daily themes and picture prompts.

Thirty-minute conversations were conducted four times per week for six months and then twice per week for an additional six months. A control group of similar individuals did not participate in such conversations, but both the intervention and control groups received weekly 10-minute telephone check-ins.

After the initial six-month period, the intervention group had a higher global cognitive test score compared with the control group with a large effect size among those with mild cognitive impairment. Also, intervention group participants with normal cognition had scores indicating higher language-based executive function.

At the end of final six-month period, intervention group participants with [mild cognitive impairment](#) had [test scores](#) indicating better memory-related brain function than those in the control group. Measures of emotional well-being improved in both control and intervention groups, suggesting that emotion can be boosted by brief weekly telephone calls while improving cognitive function requires frequent conversational engagement.

Also, brain imaging tests showed that the intervention group had increased connectivity within the dorsal attention network—a region important for the maintenance of visuospatial attention—relative to the control group, although this finding must be interpreted carefully because of the limited number of participants assessed due to COVID-19–related research restrictions.

Upon requests from former trial participants asking to continuously have conversations, Dodge and her colleagues have established a non-profit organization, the I-CONNECT Foundation. The Foundation has been providing social interactions to isolated older individuals in the community free of charge, using the same materials used in the trial.

"Our next goal is to extend these activities to reach more isolated individuals in need, as well as to delve into the biological mechanisms underlying the impact of social interactions on our brain functions," said Dodge. "Providing frequent stimulating conversational interactions via the internet could be an effective home-based dementia risk-reduction strategy against [social isolation](#) and cognitive decline. We plan to extend this therapy to geriatric outpatient populations, for which we are currently fundraising, and also examine its effectiveness for mild to moderate depressive symptoms."

The team is also exploring the possibility of providing conversational interactions via chatbot—an [artificial intelligence](#)–trained robot that provides stimulating conversations as a cost-effective intervention. "We are aware that human contacts are critically important for our emotional well-being, but for cognitive stimulations, chatbots might work as effectively as humans, which we are currently investigating," said Dodge.

More information: Hiroko H Dodge et al, Internet-Based Conversational Engagement Randomized Controlled Clinical Trial (I-CONNECT) Among Socially Isolated Adults 75+ Years Old With Normal Cognition or Mild Cognitive Impairment: Topline Results, *The Gerontologist* (2023). [DOI: 10.1093/geront/gnad147](https://doi.org/10.1093/geront/gnad147)

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