

To age well, live like a child

LIFELONG CURIOSITY IS A KEY TO BRAIN HEALTH

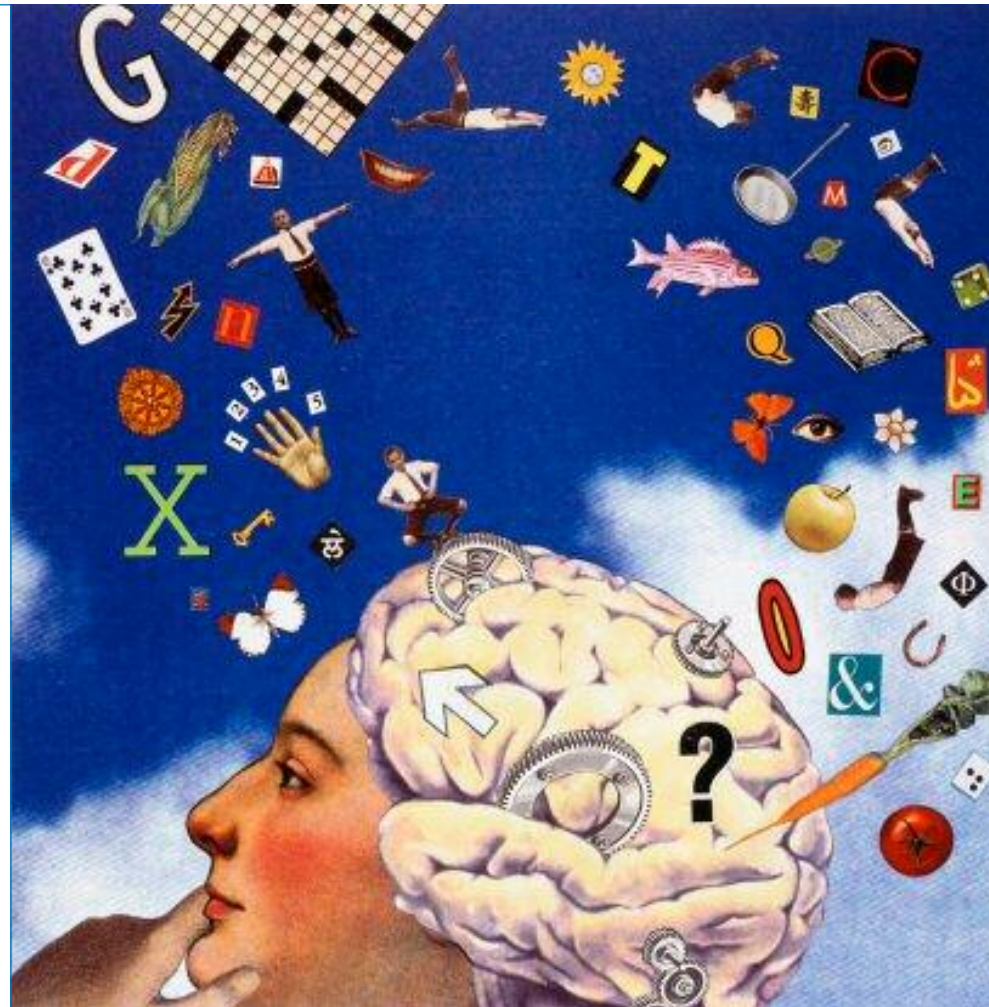
IN THE PAST, RETIREMENT AND OLD AGE were associated with sedentary and routine lifestyles; withdrawing from the world was accepted as a natural part of aging. But now, research demonstrates the importance of lifelong curiosity and intellectual engagement to brain health. That means tackling a crossword puzzle, playing bridge or learning a new language may be more than challenging diversions—they could also improve your long-term health.

According to Kirk Daffner, MD, chief of the Division of Cognitive and Behavioral Neurology, regular intellectual stimulation and interest in one's surroundings provide a measure of protection against cognitive decline and dementia, making them key ingredients in successful aging.

Daffner and his colleagues are studying the neurological basis of curiosity by measuring people's response to novelty in the laboratory.

"Previously, we looked at patients whose brains are impaired by stroke or Alzheimer's disease and established a link between the level of electrical activity in the brain when exposed to visual stimuli and subsequent behavior. Those with a higher level of brain activity demonstrate greater interest in the stimuli," explains Daffner. "Now we are looking at healthy brains—how do people preserve their cognitive function into old age?"

To answer that question, Daffner recruited study participants ranging in age from 18 to 80. After taking memory, IQ, concentration and verbal fluency tests to measure their cognitive abilities, each subject donned a cap studded with electrodes that measured their brain activity



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while they looked at a series of images. Some pictures were novel and others were repeated many times. The amount of brain activity elicited by a novel image predicted the length of time that a person would linger on it before pushing a button to advance to the next one. Those with a higher level of brain activity would spend more time examining the new pictures, an indication of interest and curiosity. At every age, those most interested in the novel images were the ones with the strongest cognitive abilities.

"People who are open to novelty give themselves an opportunity to build brain capacity," says Daffner. "New neural connections are made when we try to figure out how a new image or idea fits into our understanding of the world."

This concept is familiar to anyone who has observed a child at play. Curiosity fuels children's cognitive development and appears to play a role in keeping the mind nimble throughout life.

Daffner also found that the link between curiosity and cognitive ability

Kirk Daffner, MD, with research assistants Jenna Riis and Hyemi Chong

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KIRK DAFFNER, MD



becomes even more pronounced as we age. People with high cognitive ability exhibit more brain activity and a greater interest in novel images than their same-age peers of average cognitive ability. This gap widens considerably with advancing age. Those who have enhanced their brain capacity over the years are able to compensate, to some degree, for the wear and tear of aging.

"People who engage in stimulating intellectual pursuits are less likely to devel-

op dementia than their friends who are less engaged," says Daffner.

Academic endeavors are one way to exercise the brain; however, Daffner refers to novelty in the broadest sense. Exercising, knitting, gardening and maintaining strong relationships are all good ways to keep one's mind active. The simplest approach is to let curiosity and your interests guide you, as children do.

However, intellectual stimulation is just one piece of the brain health puzzle. High blood pressure, high cholesterol levels and diabetes are among the conditions that can damage the brain over time and limit its potential to compensate for decline caused by aging or disease.

With Americans living longer than ever before, Daffner hopes to boost awareness of the importance of intellectual stimulation, in its many forms, throughout life. Health care providers and government agencies can relay this public health message by promoting activities that help retired and elderly people remain independent, active and engaged.

"People are interested in living as productively and intelligently as they did when they were younger," says Daffner. "Our research shows that nurturing creativity and challenging the mind can help them achieve this." ♦

