

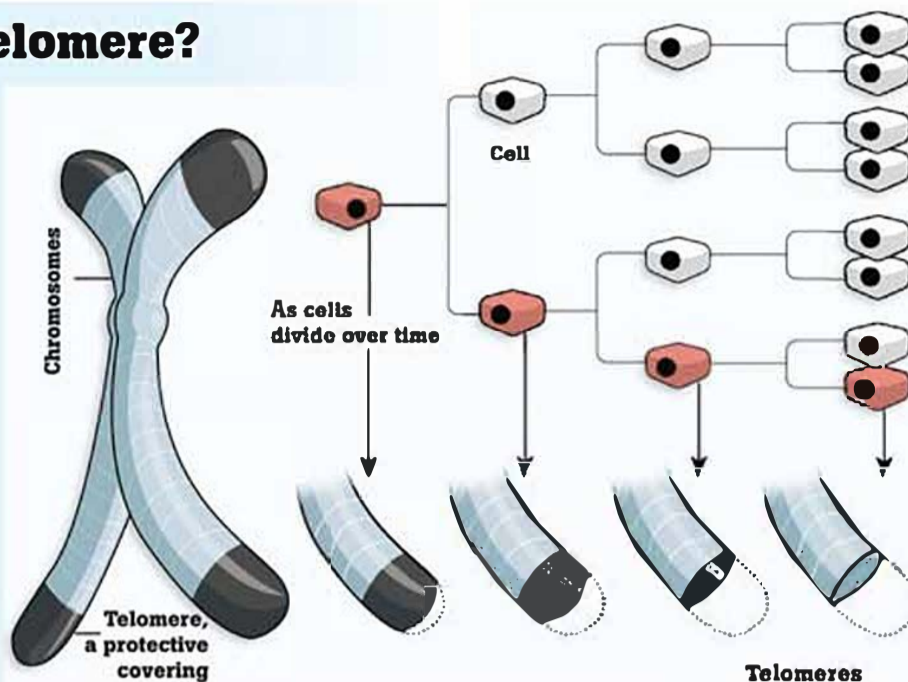
# Can Aging be delayed Preventing Premature Aging?

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## What is a Telomere?

Telomeres are the caps at the end of each strand of DNA that protect our chromosomes, like the plastic tips at the end of shoelaces. Without the coating, shoelaces become frayed until they can no longer do their job. Just as without telomeres, DNA strands become damaged and our cells can't do their job.

Researchers have found that older people have shorter telomeres. Eventually, the cells with shorter telomeres can no longer replicate. This affects more and more cells over time, leading to tissue damage and the dreaded signs of aging.



## PREVENTING PREMATURE AGING

Telomeres are damaged when a person is stressed out

A stressful life style can make you 10 years older than you really are.

Exercising daily neutralizes stress induced rapid aging.

Restoring low levels of vitamin D slows down genetics related aging.

A daily omega 3 supplement improves longevity



Source: WSJ research/ Internet ©DM GraphicDesk

Aging has been invariably associated with being disabled and falling ill. Though aging is an inevitable stage of life, the elderly can lead a healthy and active life through a healthy diet and regular exercise. Views on aging have evolved over the years and experts point out that even the young could 'age'. In an engaging interview with the Daily Mirror, Dr. N. Kumaranayake, Clinical Psychiatrist of the Kiribathgoda Base Hospital illustrated the scientific basis behind this claim and suggested methods to prevent premature aging.

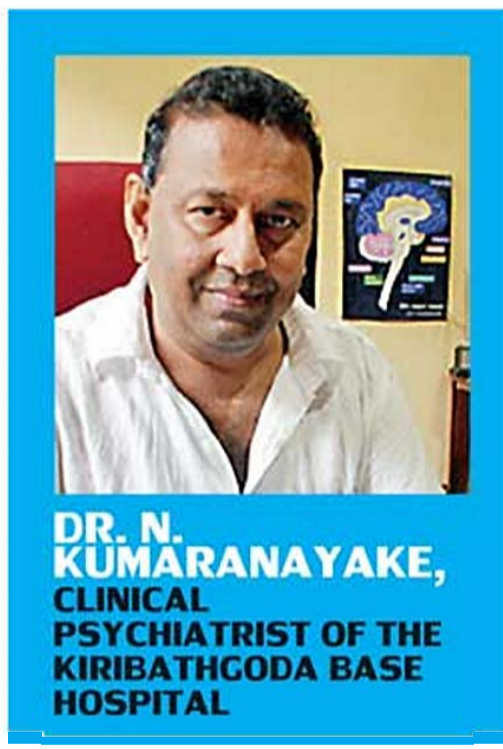


"Scientists have pointed out that chronological age is not accurate. A person can have a psychological age that exceeds their chronological age. They can feel mature or younger than they really are," Dr. Kumaranayake remarked. Chronological age is the number of years a person has lived. Psychological age refers to how old a person feels, acts and behaves. Hence Dr. Kumaranayake asserts they are not necessarily equal. Accordingly, when a person has aged psychologically he is more susceptible to falling ill.

## MODERN DISCOVERIES

### Free Radical Theory

Among many theories proposed on the subject of aging, Dr. Kumaranayake elaborated on two theories. Termed the 'Free Radical Theory of aging' Dr. Kumaranayake said free radicals resulted in a person falling ill. "Oxygen is both a blessing and a curse. Human beings need oxygen to live. Yet a simple act of breathing oxygen results in the formation of a highly reactive molecule called free radicals," he said.



"As free radicals interact with other molecules in the body, it causes oxidative damage. This damages the organs and results in a wide range of illnesses and diseases," he added.

He further said free radical formation was high in people inhabiting polluted environments, indulged in smoking and eating unhealthy food. "People take anti-oxidants to prevent free radical damage," he noted.

### Telomeres theory

Referring to the latest research which is called the telomeres theory, he said, "At the end of each chromosome there is a cap just like in a shoe lace. This cap prevents the lace from loosening. Likewise telomeres (which are at the end of chromosomes) also have a cap which protects the chromosome." It was Nobel Laureate Prof. Elizabeth Blackburn who extensively studied the telomeres.

Adding that genetic material is hidden in our chromosomes, he said that to a certain extent, genes concealed whether you would be a diabetic, a heart patient or a rheumatoid arthritic. "This genetic material doesn't come out because telomeres keep them within the chromosome. But when the telomeres are damaged, the genetic material inside the chromosome comes out. They cause illnesses like heart diseases and diabetes. This is premature aging," he noted.

Citing an example he said "Suppose your genetics inflict a particular disease when you're 60 years old. But as your telomeres are damaged you would contract it at 30."

Referring to instances when telomeres could be loosened he said, "Telomeres get shorter naturally. But environmental factors can damage it as well. They are damaged when a person is stressed out."

Recounting an encounter with one of his patients who was suffering from premature aging, Dr. Kumaranayake said, "A 45-year-old manager of a company complained that he was suffering from constant headaches, backaches, feelings of irritability and anger. He is a very hard worker pursuing a degree as well. Recently he also found that his diabetic level was in the level of impairment. But he had no record of a family history of cardiovascular diseases or diabetes."

Applying the telomeres concept, he said the manager was suffering from premature aging. "Scientists have found that chronic stress increases the risk of contracting cardio-vascular diseases and can even shorten one's lifespan," he stressed.

## KEY POINTS

- Psychological age is not necessarily equal to chronological age and could exceed the latter.
- The Free-radical theory of aging and the Telomere theory of aging are the main theories related to aging and longevity.
- Free radicals result in a person falling ill.
- Free radical formation is high in people inhabiting polluted environments, indulged in smoking and eating unhealthy food.
- Anti-oxidants prevent free radical damage.
- Telomeres (which are at the end of chromosomes) protect chromosomes.
- When telomeres are damaged, the genetic

## **PREVENTING PREMATURE AGING**

Discussing ways to prevent premature aging, Dr. Kumaranayake suggested that exercising daily neutralized stress-induced rapid aging.

“Vitamin D affects telomeres. Studies indicate that restoring low vitamin D levels to normal slows down genetic-related aging. High serum vitamin D concentration is linked with longer telomeres. This is equal to years of additional lifespan,” he explained. “Low levels of vitamin D are associated with many age-related diseases such as cancer, diabetes, high blood pressure, osteoporosis and strokes. Vitamin D can be obtained easily through a nutritional supplement with the advice of a doctor,” he said.

He noted that Prof. Blackburn’s research demonstrated how the individual with abundant Omega 3 in his blood had a 20% reduction in the rate of telomere loss compared to those with low levels of Omega 3 in their blood. “This shows that Omega 3 delays genetic aging,” he noted.

“According to her study, a daily Omega 3 supplement lengthened telomeres. An intake of 1000-2500mg a day of Omega 3 fats is sufficient to prevent you from premature aging. This improves longevity and prevents age-related diseases like Alzheimer’s,” he said.

He further pointed out that this discovery coincided with the findings of the American Heart Association which recommends 1000mg a day of Omega fatty acids for the prevention of heart attacks and strokes.