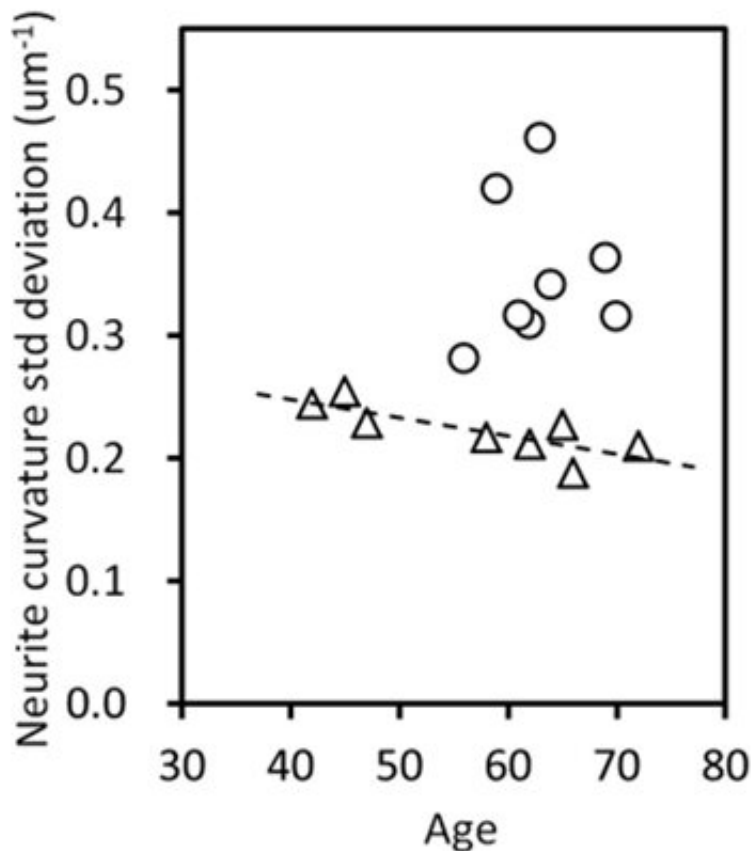


# Structural aging of human neurons contrast with changes seen in schizophrenia

June 27 2023

---



Scatter plot of standard deviation of neurite curvature versus age. Credit: TMIMS

While the human mind develops during aging, the mechanism of development remains unknown but may be the result of brain alteration

derived from life style and environment.

Schizophrenia usually develops during puberty through early adulthood and is suspected to interrupt brain development, but the degree of neural alteration remains unclear in schizophrenia.

A new study, published in *PLOS ONE*, performed nanometer-scale three-dimensional analyses of post-mortem brain tissues of patients with schizophrenia and tissues from control patients by using synchrotron radiation nanotomography (nano-CT).

The distribution profiles of neurite curvature of the control cases showed a [trend](#) depending on their age, resulting in an age-correlated decrease in the standard deviation of neurite curvature (Pearson's  $r = -0.80$ ,  $p = 0.018$ ).

In [contrast](#) to the control cases, the [schizophrenia](#) cases deviate upward from this correlation, exhibiting a 60% higher neurite curvature compared with the controls ( $p = 7.8 \times 10^{-4}$ ).

The neurite curvature also showed a correlation with a hallucination score (Pearson's  $r = 0.80$ ,  $p = 1.8 \times 10^{-4}$ ), indicating that neurite structure is relevant to brain function.

These findings suggest that adjusting the neurite curvature offers a possible route to treating schizophrenic hallucinations.

**More information:** Ryuta Mizutani et al, Structural aging of human neurons is opposite of the changes in schizophrenia, *PLOS ONE* (2023). [DOI: 10.1371/journal.pone.0287646](https://doi.org/10.1371/journal.pone.0287646)

Provided by Tokyo Metropolitan Institute of Medical Science

Citation: Structural aging of human neurons contrast with changes seen in schizophrenia (2023, June 27) retrieved 2 May 2024 from

<https://medicalxpress.com/news/2023-06-aging-human-neurons-contrast-schizophrenia.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.