

EARLY ONSET ALZHEIMER'S DISEASE

BY MANAN GUPTA

WHAT IS ALZHEIMER'S

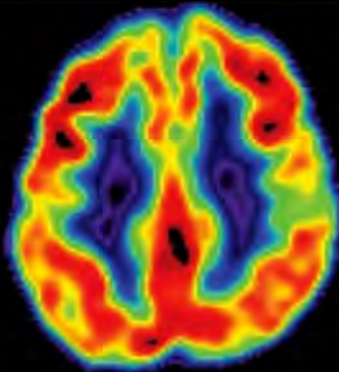
ACCORDING TO THE NATIONAL INSTITUTE OF HEALTH, ALZHEIMERS DISEASE IS A COGNITIVE AND BEHAVIORAL DISEASE THAT'S PRIMARY CHARACTERISTIC IS MEMORY LOSS.

WHEN DISCUSSING EARLY ONSET ALZHEIMER'S DISEASE, THIS MEANS THAT SOMEONE DEVELOPS THE DISEASE EARLIER ON IN THEIR LIFE SPAN THAN TYPICALLY EXPECTED. THE TYPICAL AGE OF ONSET IS 60 YEARS OLD. THEREFORE THOSE WITH EARLY ONSET ALZHEIMER'S WILL DISPLAY SYMPTOMS MUCH BEFORE THE AGE OF 60

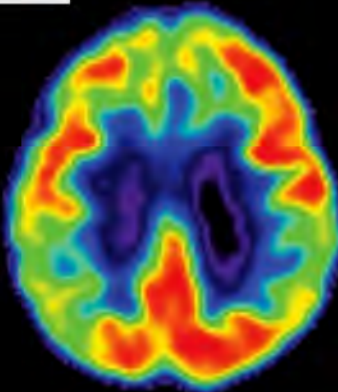
ALZHEIMER'S DISEASE FACT SHEET. (N.D.).
RETRIEVED MARCH 27, 2019, FROM
[HTTPS://WWW.NIA.NIH.GOV/HEALTH/ALZHEIMERS-DISEASE-FACT-SHEET#CAUSES](https://www.nia.nih.gov/health/alzheimers-disease-fact-sheet#causes)

[HTTPS://WWW.NEUROLOGYADVISOR.COM/TOPICS/NEURODEGENERATIVE-DISEASES/NEUROPSYCHIATRIC-SYMP TOMS-MAY-BE-A-MARKER-OF-PRECLINICAL-ALZHEIMERS/](https://www.neurologyadvisor.com/topics/neurodegenerative-diseases/neuropsychiatric-symptoms-may-be-a-marker-of-preclinical-alzheimers/)

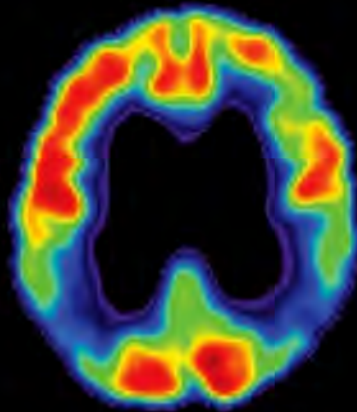
NOTICE HOW THERE IS MUCH LESS BRAIN ACTIVITY IN THE BRAIN WITH ALZHEIMER'S DISEASE



Normal



Mild cognitive impairment



Alzheimer's disease

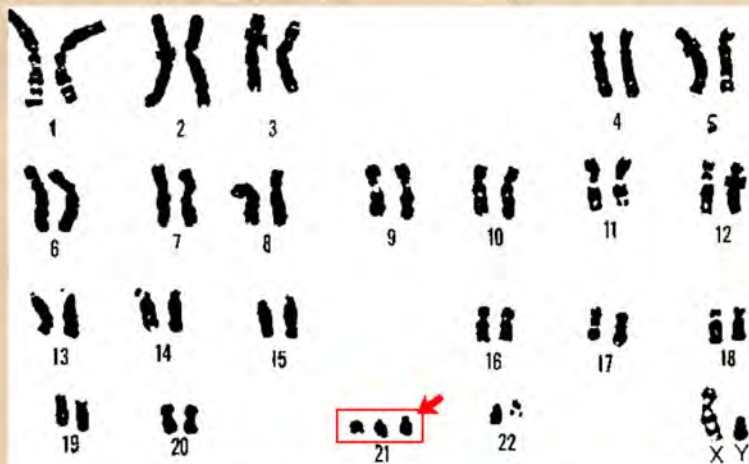
CHROMOSOME 21

IN ORDER TO UNDERSTAND EARLY ONSET ALZHEIMER'S, LETS UNDERSTAND WHAT GENETICALLY CAN CAUSE THIS DISEASE

THE 21ST CHROMOSOME IS GENETICALLY WHERE ALZHEIMER'S CAN STEM FROM. WHAT IS SPECIAL ABOUT THE 21ST CHROMOSOME IS THAT PEOPLE CAN EXPERIENCE TRISOMY OF CHROMOSOME 21. THIS MEANS THAT PEOPLE CAN HAVE AN EXTRA COPY OF CHROMOSOME 21. ADDITIONALLY, HAVING AN EXTRA COPY OF THE 21ST CHROMOSOME CAUSES ANOTHER DISEASE KNOWN AS DOWN SYNDROME. HOWEVER, TRISOMY OF CHROMOSOME 21 IS ALSO LINKED TO EARLY ONSET ALZHEIMER'S DISEASE

WISEMAN, F. K., AL-JANABI, T., HARDY, J., KARMILOFF-SMITH, A., NIZETIC, D., TYBULEWICZ, V. L. J., ... STRYDOM, A. (2015). A GENETIC CAUSE OF ALZHEIMER DISEASE: MECHANISTIC INSIGHTS FROM DOWN SYNDROME. NATURE REVIEWS NEUROSCIENCE, 16(9), 564574.
[HTTPS://DOI.ORG/10.1038/NRN3983](https://doi.org/10.1038/NRN3983)

[HTTPS://WWW.NATIONALGEOGRAPHIC.COM/SCIENCE/PHENOMENA/2013/07/17/HOW-TO-SHUT-DOWN-THE-EXT-RA-CHROMOSOME-IN-DOWNS-SYNDROME/](https://www.nationalgeographic.com/science/phenomena/2013/07/17/how-to-shut-down-the-extra-chromosome-in-downs-syndrome/)



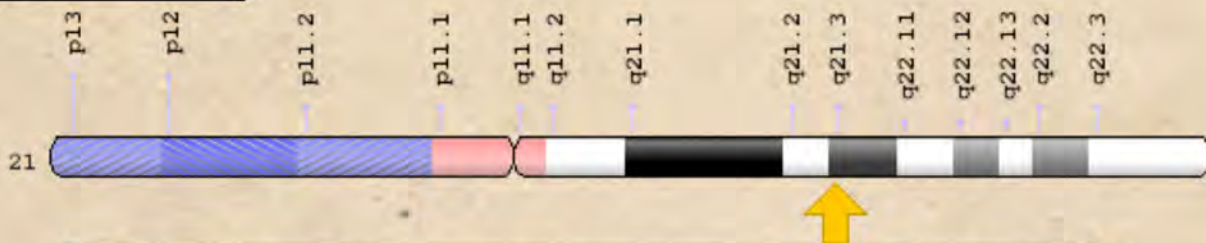
HIGHLIGHTED BY THE RED BOX ARE CHROMOSOME 21, NOTICE HOW THERE IS AN EXTRA COPY OF THE CHROMOSOME COMPARED TO THE OTHER CHROMOSOMES SHOWN

WHAT ABOUT TRISOMY OF CHROMOSOME 21 RESULTS IN ALZHEIMER'S DISEASE?

THE APP GENE

THE AMYLOID PRECURSOR PROTEIN, ALSO KNOWN AS APP IS A GENE LOCATED ON THE 21ST CHROMOSOME AND IS LINKED TO BEING A CAUSE OF EARLY ONSET ALZHEIMER'S. THIS GENE HAS BEEN DETERMINED TO BE A CAUSE FOR ALZHEIMER'S AND ESPECIALLY SO IN PATIENTS WITH TRISOMY OF CHROMOSOME 21. THE REASON IS BECAUSE WHEN PEOPLE HAVE AN EXTRA COPY OF THE 21ST CHROMOSOME IT ALSO MEANS THEY HAVE AN EXTRA COPY OF THE APP GENE. BY HAVING AN EXTRA COPY OF THIS GENE KNOWN TO BE A CAUSE FOR ALZHEIMER'S, PEOPLE WH SUFFER FROM TRISOMY OF CHROMOSOME 21 HAVE AN INCREASED RISK FOR DEVELOPING THIS DISEASE. THIS IS GENETICALLY HOW TRISOMY OF CHROMOSOME 21 IS LINKED TO BEING A CAUSE OF ALZHEIMER'S DISEASE

[HTTPS://GHR.NLM.NIH.GOV/GENE/APP](https://ghr.nlm.nih.gov/gene/app)



HERE IS A SINGLE STRAND OF CHROMOSOME 21. THE YELLOW ARROW INDICATES THE LOCATION OF THE APP GENE ON CHROMOSOME 21

BUT WHAT ABOUT ALZHEIMER'S DISEASE MAKES IT SO TERRIBLE?

WHY'S ALZHEIMER'S BAD?

SYMPTOMS

- MEMORY LOSS
- IMPAIRED JUDGMENT AND REASONING
- DIFFICULTY SPEAKING IN NATIVE TONGUE, DIFFICULTY IN COMMUNICATION
- REPETITIVE AND IMPULSIVE BEHAVIOR
- EXPERIENCE HALLUCINATIONS AND PARANOIA
- UNABLE TO LEARN NEW THINGS
- DIFFICULTY IN RECOGNITION OF FAMILY, FRIENDS, AND ASSOCIATES

[HTTPS://WWW.NIA.NIH.GOV/HEALTH/ALZHEIMERS-DISEASE-FACT-SHEET](https://www.nia.nih.gov/health/alzheimers-disease-fact-sheet)

AS ALZHEIMER'S BEGINS TO WORSEN IN PATIENTS WHO SUFFER FROM IT, THEY BECOME UNABLE TO TAKE CARE OF THEMSELVES. PEOPLE WITH MODERATE TO SEVERE ALZHEIMER'S WILL STRUGGLE TO PERFORM EVERYDAY ACTIVITIES AS THEY USED TO. FURTHERMORE THEY WILL STRUGGLE TO EVEN LIVE WITHOUT CONSTANT ATTENTION. AS A RESULT, PATIENTS WITH ALZHEIMER'S DISEASE WILL REQUIRE CONSTANT CARE, SO THEY ARE TYPICALLY ADMITTED INTO NURSING HOMES. NEARLY 6 MILLION PEOPLE IN THE U.S SUFFER FROM ALZHEIMER'S DISEASE

INVENTOR, B. R., FARRAN, C. J., PAUN, O., COTHRAN, F., RAJAN, K., SWANTEK, S. S., & MCCANN, J. J. (2018). LONGITUDINAL EFFECTS OF ACTIVITIES, SOCIAL ENVIRONMENT, AND PSYCHOTROPIC MEDICATION USE ON BEHAVIORAL SYMPTOMS OF INDIVIDUALS WITH ALZHEIMERS DISEASE IN NURSING HOMES. JOURNAL OF PSYCHOSOCIAL NURSING AND MENTAL HEALTH SERVICES, 56(11), 1826.

Healthy Brain Severe Alzheimer's



EVEN THE STRUCTURE OF THE BRAIN BEGINS TO SUFFER AS THE SEVERITY OF ALZHEIMER'S DISEASE INCREASES

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THE END!