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# Astronaut has different DNA from identical twin after returning from space

**BEFORE** a US astronaut ventured into space he had the same DNA as his identical twin brother, but when he returned to Earth something had changed.

Chris Perez

NY Post MARCH 16, 2018 10:02AM

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ASTRONAUT Scott Kelly had an identical twin brother when he ventured into space and set the record for most consecutive days spent in orbit, but not anymore.

In a groundbreaking new study, NASA scientists found that Kelly's DNA had been altered upon his return to earth — with 7 per cent of his genes experiencing an “unexpected change,” according to the agency, [New York Post](#) reports.

Research teams from around the US had been analysing the New Jersey native's condition and genetic makeup following his year-long stay aboard the International Space Station as part of [NASA's "Twins Study"](#).



Astronaut twins Mark Kelly, left, and Scott Kelly. Picture: Evan Agostini/Invision/APSource:AP

Kelly said on Twitter that he didn't find out about the results until he saw media reports this week about the DNA change.

“What? My DNA changed by 7%! Who knew?” he tweeted. “I just learned about it in this article. This could be good news! I no longer have to call @ShuttleCDRKelly my identical twin brother anymore.”



### [Scott Kelly](#)

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According to NASA, Kelly's 340 days in orbit may have ultimately activated what scientists describe as "space genes".

"This is thought to be from the stresses of space travel, which can cause changes in a cell's biological pathways and ejection of DNA and RNA," the agency said. "Such actions can trigger the assembly of new molecules, like a fat or protein, cellular degradation; and can turn genes on and off, which change cellular function."



Scott Kelly's DNA no longer matches his brother's after his time in space. *Source: Supplied*

Researchers said the long-term changes were related to Kelly's immune system, DNA repair, bone formation networks, hypoxia and hypercapnia. "By studying how space travel can influence chemical changes in RNA and DNA, new 'space genes' were reported, indicating significant cell stress and correlations with changes noted by other Twins Study investigators," explained NASA.



-- ADVERTISEMENT --

"Whole-genome sequencing showed each twin has hundreds of unique mutations in their genome, more than expected, and some were found only after spaceflight."

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