

## Identical twins are not so identical

10th January, 2021



A new study shows that while identical twins can look perfectly alike, it is not a perfect similarity. They are not clones of each other. Scientists at the University of Iceland analyzed the DNA from 387 pairs of identical twins -

babies born from a single fertilized egg. The scientists compared the DNA with that of the twins' parents and children. The geneticists looked for mutations in the early stages of development. A mutation is a tiny change in the sequence of the DNA that can occur when a cell divides. This change causes a slight difference in the DNA replication process. A single, tiny change can create differences in height, intelligence, eye colour and even in susceptibility to disease.

The study shows that identical twins do not share totally identical DNA. In about 15 per cent of identical twin pairs, one twin carried a "substantial" number of mutations that the other did not share. The scientists say this difference is important as it sheds light on the "nature versus nurture" debate. This is whether human behaviour is determined by the environment, socialization and upbringing, or by a person's genes. The research shows that this tiny difference, and not environmental factors, could be the reason why one twin develops different behavioural characteristics or medical conditions. Professor Kari Stefansson said a genetic mutation may be the source of a given disease or trait.

Sources: [theguardian.com](http://theguardian.com) / [huffpost.com](http://huffpost.com) / [livescience.com](http://livescience.com)

## Writing

It is important we all understand the nature versus nurture debate. Discuss.

## Chat

Talk about these words from the article.

identical / twins / perfect / similarity / clone / parents / geneticists / mutation / height / share / scientists / nature / nurture / human behaviour / genes / medical / disease

## True / False

- a) A study suggests identical twins could in fact be clones of each other. T / F
- b) Scientists looked at data from 387 identical twins. T / F
- c) Scientists ignored any mutations found in DNA. T / F
- d) A change in the DNA replication process can affect intelligence. T / F
- e) About 15% of identical twin pairs had totally identical DNA. T / F
- f) The research adds understanding to the nature versus nurture debate. T / F
- g) The research shows DNA mutations makes identical twins less identical. T / F
- h) A professor said genetic mutations might give rise to a certain trait. T / F

## Synonym Match

(The words in **bold** are from the news article.)

- |                          |                     |
|--------------------------|---------------------|
| 1. <b>perfectly</b>      | a. childhood        |
| 2. <b>analyzed</b>       | b. alteration       |
| 3. <b>single</b>         | c. helps to explain |
| 4. <b>mutation</b>       | d. vulnerability    |
| 5. <b>susceptibility</b> | e. examined         |
| 6. <b>substantial</b>    | f. affected         |
| 7. <b>sheds light on</b> | g. considerable     |
| 8. <b>determined</b>     | h. in every respect |
| 9. <b>upbringing</b>     | i. characteristic   |
| 10. <b>trait</b>         | j. solitary         |

## Discussion – Student A

- a) What do you know about twins?
- b) What are the good things about being an identical twin?
- c) What do you think of cloning?
- d) What do you know about DNA?
- e) How much do you look like your parents or siblings?
- f) In what ways do you take after your parents?
- g) Would you like to be an identical twin?
- h) Would you prefer to be a twin or a quadruplet?

## Phrase Match

- |  |                        |
|--|------------------------|
| 1. identical twins can look            | a. number of mutations |
| 2. They are not clones                 | b. disease             |
| 3. babies born from a single           | c. or trait            |
| 4. mutations in the early stages       | d. conditions          |
| 5. susceptibility to                   | e. of each other       |
| 6. a substantial                       | f. of development      |
| 7. it sheds light on the nature versus | g. and upbringing      |
| 8. the environment, socialization      | h. perfectly alike     |
| 9. medical                             | i. nurture debate      |
| 10. the source of a given disease      | j. fertilized egg      |

## Discussion – Student B

- What do you think about what you read?
- What are the differences between twins and identical twins?
- What do you know of the 'nature versus nurture' debate?
- What parts of your genes would you want to go to your children?
- Are we born with our personality or does our upbringing make it?
- What changes would you have wanted made to your DNA?
- How did your upbringing change you?
- What questions would you like to ask the scientists?

## Spelling

- it is not a perfect aimriilsyt
- from a single rlzdiietfe egg
- A tiomaunt is a tiny change
- the esceuqne of the DNA
- the DNA nicitoprae process
- ipbicsteyltisu to disease
- one twin carried a tsnastibula number
- the nature versus ruenrut debate
- the environment, socialization and ibnirgugpn
- a person's sngce
- behavioural aiartcerscsthci
- a given disease or rttai

### Answers – Synonym Match

1. h	2. e	3. j	4. b	5. d
6. g	7. c	8. f	9. a	10. i

## Role Play

### Role A – Good Looks

You think good looks are the best thing to inherit from your parents. Tell the others three reasons why. Tell them why their things aren't as important. Also, tell the others which is the least important of these (and why): a sense of humour, being tall or intelligence.

### Role B – Sense of Humour

You think a sense of humour is the best thing to inherit from your parents. Tell the others three reasons why. Tell them why their things aren't as important. Also, tell the others which is the least important of these (and why): good looks, being tall or intelligence.

### Role C – Being Tall

You think being tall is the best thing to inherit from your parents. Tell the others three reasons why. Tell them why their things aren't as important. Also, tell the others which is the least important of these (and why): a sense of humour, good looks or intelligence.

### Role D – Intelligence

You think intelligence is the best thing to inherit from your parents. Tell the others three reasons why. Tell them why their things aren't as important. Also, tell the others which is the least important of these (and why): a sense of humour, being tall or good looks.

## Speaking – Characteristics

Rank these with your partner. Put the best at the top. Change partners often and share your rankings.

- |              |                  |
|--------------|------------------|
| • Optimistic | • Good looks     |
| • Energetic  | • Intelligence   |
| • Hair       | • Sense of humor |
| • Good skin  | • Being tall     |

### Answers – True False

a	F	b	F	c	F	d	T	e	F	f	T	g	T	h	T
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Answers to Phrase Match and Spelling are in the text.