Fermented food can help expel nanoplastics from body

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Scientists have written extensively about the prevalence of microplastics and nanoplastics in the environment and in our bodies. Microplastics are larger than a micrometre (1 millionth of a metre), while nanoplastics are smaller than a micrometre. A new study has found that bacteria from the fermented Korean dish kimchi can help to expel nanoplastics from the body. Researchers at the World Institute of Kimchi in South Korea have discovered a microbe that can attach itself to nanoplastics in the gut. The foreign body is then safely expelled in our bodily waste. The plastic does not pass through the intestinal lining and accumulate in organs like the brain, heart, kidneys, and liver.

Nanoplastics are of increasing concern to the medical community. There are many unknown side effects of these tiny particles being in our organs. Current estimates suggest people take in up to 120,000 microscopic fragments every year. Newspapers often print stories about our body containing 7 grams of plastic, which is about the mass of a credit card. The Korean scientists believe their research might alleviate the accumulation of plastic in our bodies. Lead researcher Dr Se-hee Lee said: "Microorganisms derived from traditional fermented foods could represent a new biological approach to address this emerging challenge. We will continue to expand the scientific value of kimchi."

Sources: scitechdaily.com / *earth.com* / *phys.org*

Writing

We should stop using plastic things. Discuss.

Chat

Talk about these words from the article.

scientists / microplastics / the environment / bacteria / fermented / kimchi / the brain / the medical community / newspapers / credit card / microorganisms / challenge

True / False

1) Very little has been written about nanoplastics in the body. T / F
2) Nanoplastics are larger than one millionth of a metre. T / F
3) The research is from the World Institute of Kimchi. T / F
4) Kimchi might mean nanoplastics do not get into our organs. T / F
5) There are very few side effects of nanoplastics in our body. T / F
6) Newspapers often write about there being a lot of plastic in our body. T / F
7) A lot of the plastic is our body is credit-card shaped. T / F
8) Scientists will find out more about the scientific value of kimchi. T / F

Synonym Match

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

1.	**extensively**	a.	worry
2.	**prevalence**	b.	found
3.	**expel**	c.	grow
4.	**discovered**	d.	gather
5.	**accumulate**	e.	widely
6.	**concern**	f.	reduce
7.	**estimates**	g.	get rid of
8.	**alleviate**	h.	tackle
9.	**address**	i.	commonness
10.	**expand**	j.	guesses

Discussion – Student A

a) What do you know about the Korean food kimchi?
b) What other fermented food do you know about?
c) How worried are you about nanoplastics?
d) How much do we need plastic?
e) How can we use plastic less?
f) How do you feel when you see plastic pollution on beaches?
g) What do you know about Korean food?
h) How healthy do you think you are?

Phrase Match

1. the prevalence
2. Microplastics are larger than
3. bacteria from the fermented
4. a microbe that can attach
5. accumulate in organs like the brain, heart,
6. Nanoplastics are of increasing concern to
7. people take in up to 120,000 microscopic
8. about the mass of a
9. a new biological
10. address this emerging

a. the medical community
b. itself to nanoplastics
c. approach
d. Korean dish kimchi
e. credit card
f. kidneys, and liver
g. of microplastics
h. fragments every year
i. challenge
j. a micrometre

Discussion – Student B

a) What do you think about what you read?
b) How do you feel about plastic being in your brain
c) What side effects might there be of plastic in our body?
d) What can we do to stop plastic from entering our bodies?
e) Will you eat kimchi to get rid of nanoplastics?
f) What do you think of plastic surgery?
g) What problems will plastic cause in 50 years from now?
h) What questions would you like to ask the researchers?

Spelling

1. scientists have written xltivnyesee
2. the plernvacee of microplastics
3. tahcat itself to nanoplastics
4. safely leeeldxp in our bodily waste
5. pass through the etnasinlit lining
6. accumulate in gnrsao like the brain
7. nanoplastics are of increasing enconrc
8. There are many unknown side ffetces
9. 120,000 microscopic eantsgmfr
10. rnsteeper a new biological approach
11. esdadsr this emerging challenge
12. expand the eitinisfcc value of kimchi

Answers – Synonym Match

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

Comprehension Questions

Listen to / read the news article. Answer these questions. (Answers are on p. 27 of the 27-page PDF.)

1.	Who has written about extensively about microplastics and nanoplastics?
2.	What size are nanoplastics?
3.	What is the name of the place the researchers are from?
4.	What thing in the gut attaches to nanoplastics?
5.	What organs are mentioned besides the brain and heart?
6.	Who is getting more worried about nanoplastics?
7.	How many side effects are there of nanoplastics in our body?
8.	How much microplastic might there be in our bodies?
9.	What is the mass of plastic in our bodies likened to?
10.	What will researchers continue to research the scientific value of?

Speaking – Plastic Things

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

- Pens
- Bags
- Toys
- Buckets
- Credit cards
- Toothbrushes
- Food containers
- Packaging materials

Answers – True False

1	F	2	F	3	T	4	T	5	F	6	T	7	F	8	T

Answers to Phrase Match and Spelling are in the text.

