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## Your Friends Share Their Gut Microbes With You!

### Description

Your interactions with family and friends extend beyond shared meals and pastimes; they encompass the exchange of gut microbes as well. This implies that your unique microbial composition can reflect the nuances of your social landscape.

A recent study has elucidated the profound influence of interpersonal socialization on the human gut microbiome.

Conducted by researchers Francesco Beghini and Jackson Pullman at Yale University, the investigation involved correlating a social network map of 1,787 adults residing in isolated Honduran villages with a comprehensive analysis of the microbial life within each participant's gut.

"[It] was a monumental effort (if one can term it so for the collection of hundreds of stool specimens from remote jungle communities)," remarked Nicholas Christakis, a sociologist and physician at Yale, in a conversation with ScienceAlert.

The researchers meticulously gathered information regarding the villagers' social connections, thus constructing a thorough representation of social interactions within the community.

This data forms part of a larger initiative that commenced in 2013, in collaboration with both local public health agencies and community leaders. The project not only served academic purposes but also facilitated diagnosis and treatment for participants identified as needing medical intervention based on their samples.

Villagers were instructed on self-collection of stool samples, which were subsequently handled by a local team and dispatched to the United States for analysis.

While the overarching project encompassed 176 villages, the current study concentrated on data from 18 particularly isolated communities in the western highlands of Honduras.

"We opted to focus on isolated populations, where social ties were confined within a specific community," Christakis explained.

Future research is slated for regions such as Greece, aiming to uncover comparative insights across diverse cultures. However, Christakis posits that findings from these secluded Honduran villages yield universal revelations regarding the interplay between human social interactions and the microbiome's composition.

"We believe our findings possess broad relevance, illuminating how social dynamics influence the microbial inhabitants of human bodies."

Notably, the study revealed that specific microbial species and strains are not exclusively shared among family units but also among close friends and other non-kin connections.

Furthermore, individuals who occupy socially central roles—those with extensive community networks—exhibit gut microbiomes more akin to the village's overall composition than those situated on the



social periphery.

It's noteworthy that the phenomenon of microbial strain sharing appears to intensify through social interactions over time. In a subset of 301 individuals whose microbiomes were re-evaluated two years later, those maintaining greater face-to-face connections displayed greater similarities in gut flora compared to their more isolated counterparts.

For individuals experiencing increasing social isolation, a diminished array of interactions likely influences the makeup of their microbiomes. Christakis elucidated, "If you find yourself socially isolated, your microbial community will differ significantly from that of a more socially engaged individual."

However, the implications of such differences remain uncertain—whether advantageous or detrimental hinges on numerous factors.

"The act of sharing microbes is not inherently beneficial or harmful; rather, the context and specific microbes involved dictate their potential impacts," stated Christakis.

For example, after antibiotic use, individuals may experience a depletion of beneficial gut microbes, necessitating recolonization, which likely occurs through social interactions.

Notably, existing research has connected gut microbiomes to various mental and physical health conditions, including obesity, depression, and arthritis, suggesting that community structure may profoundly influence the emergence of microbial profiles associated with such ailments.

This pivotal research has been published in [Nature](#).

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## Vocabulary List:

1. **Microbiome** /'maɪ.krəʊ,baɪ.əʊm/ (noun): The community of microorganisms living in a particular environment especially the gut.
2. **Interpersonal** /,ɪn.tə'pɜːr.sə.nəl/ (adjective): Relating to relationships or communication between people.
3. **Elucidated** /ɪ'luː.sɪ.deɪtɪd/ (verb): Made something clear; explained.
4. **Correlating** /'kɔːr.ə.leɪtɪŋ/ (verb): Establishing a relationship or connection between two or more things.
5. **Phenomenon** /fə'nɒ.mə.nən/ (noun): An observable event or occurrence often subject to study.
6. **Ailments** /'eɪl.mənts/ (noun): Physical disorders or illnesses typically minor.

## Comprehension Questions



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## Multiple Choice

1. What did a recent study elucidate about the influence of interpersonal socialization?
  - Option: Its impact on mental health
  - Option: Its impact on the human gut microbiome
  - Option: Its impact on communication skills
  - Option: Its impact on physical fitness
2. Who were the researchers behind the investigation on the human gut microbiome in isolated Honduran villages?
  - Option: Nicholas Christakis and Francesco Beghini
  - Option: Jackson Pullman and Nicholas Christakis
  - Option: Francesco Beghini and Jackson Pullman
  - Option: Jackson Pullman and Francesco Beghini
3. How did the researchers analyze the microbial life within each participant's gut?
  - Option: Through blood samples
  - Option: Through social media analysis
  - Option: Through a comprehensive analysis
  - Option: Through bone marrow samples
4. What did the study reveal about microbial strain sharing among individuals?
  - Option: Only shared among family members
  - Option: Shared only among close friends
  - Option: Exclusively shared among non-kin connections
  - Option: Shared among family units and close friends
5. Which group of individuals exhibited gut microbiomes more akin to the village's overall composition?
  - Option: Those with limited social connections
  - Option: Those on the social periphery
  - Option: Those with extensive community networks
  - Option: Those in isolated communities
6. What was a finding regarding individuals who experience increasing social isolation?
  - Option: Decreased microbial diversity
  - Option: Increased gut flora variability
  - Option: No impact on gut microbiomes
  - Option: Increased beneficial gut microbes



**True-False**

7. The study conducted on the human gut microbiome included data from 176 villages in Honduras.
8. Socially isolated individuals tend to exhibit gut microbiomes similar to socially engaged individuals.
9. The act of sharing microbes is always detrimental to health.
10. Antibiotic use can lead to a depletion of beneficial gut microbes.
11. Community structure has no influence on the emergence of microbial profiles tied to health conditions.
12. Research on gut microbiomes has not linked them to obesity or depression.

**Gap-Fill**

13. The study focused on data from 18 isolated communities in the western highlands of Honduras, out of a total of \_\_\_\_\_ villages included in the overarching project.
14. Individuals with extensive community networks exhibited gut microbiomes more akin to the village's overall composition than individuals situated on the social \_\_\_\_\_.
15. According to Christakis, individuals experiencing increasing social isolation are likely to have a \_\_\_\_\_ array of interactions affecting their microbial makeup.
16. Christakis mentioned that after antibiotic use, individuals may experience a depletion of beneficial gut microbes, necessitating \_\_\_\_\_.
17. Existing research has linked gut microbiomes to various health conditions, including \_\_\_\_\_, suggesting a profound influence of community structure.
18. The pivotal research discussed in the text has been published in \_\_\_\_\_.



## Answer

**Multiple Choice:** 1. Its impact on the human gut microbiome 2. Francesco Beghini and Jackson Pullman 3. Through a comprehensive analysis 4. Shared among family units and close friends 5. Those with extensive community networks 6. Decreased microbial diversity

**True-False:** 7. False 8. False 9. False 10. True 11. False 12. False

**Gap-Fill:** 13. 176 14. periphery 15. diminished 16. recolonization 17. obesity, depression, and arthritis 18. Nature

## Vocabulary quizzes

### Multiple Choice ( Select the Correct answer for each question. )

1. Which word means to make up form or establish?  
Option: Acknowledge  
Option: Constitute  
Option: Catalyze  
Option: Ascertain
2. Which word refers to a sequence of actions performed in a customary way?  
Option: Extravagant  
Option: Ritual  
Option: Enigmatic  
Option: Flavored
3. Which term is used to describe the magnetic field around a planet?  
Option: Diffraction  
Option: Temporal  
Option: Magnetosphere  
Option: Uncertainty
4. Which word means mysterious or puzzling?  
Option: Innovative  
Option: Probabilistic  
Option: Facilitating  
Option: Enigmatic
5. Which term refers to the microorganisms in a particular environment?  
Option: Interference  
Option: Microbiome



Option: Interpersonal

Option: Elucidated

6. Which word means to secretly enter or penetrate?

Option: Implication

Option: Acknowledge

Option: Infiltrate

Option: Catalyze

7. Which term describes substances that cause hallucinations?

Option: Ritual

Option: Extravagant

Option: Hallucinogenic

Option: Enigmatic

8. Which word refers to substances released into the air?

Option: Interference

Option: Magnetosphere

Option: Emissions

Option: Diffraction

9. Which term relates to the likelihood of an event occurring?

Option: Temporal

Option: Uncertainty

Option: Innovative

Option: Probabilistic

10. Which term refers to illnesses or diseases?

Option: Correlating

Option: Phenomenon

Option: Ailments

Option: Elucidates

**Gap-Fill ( Fill in the blanks with the correct word from the vocabulary list. )**

11. His absence from the meeting had serious \_\_\_\_\_ for the project.

12. It is important to \_\_\_\_\_ your mistakes and learn from them.

13. The investigation aimed to \_\_\_\_\_ the truth behind the mysterious disappearance.



14. The new innovation is expected to \_\_\_\_\_ growth in the industry.
15. The chef prepared a special \_\_\_\_\_ of exotic flavors for the event.
16. The professor's explanation fully \_\_\_\_\_ the complex theory.
17. The radio reception was disrupted by \_\_\_\_\_ from nearby electrical devices.
18. The data analysts are tasked with \_\_\_\_\_ the trends in customer behavior.
19. The training workshop focused on \_\_\_\_\_ effective communication skills.
20. The sudden increase in online shopping is a notable \_\_\_\_\_.

**Matching Sentences ( Match each definition to the correct word from the vocabulary list. )**

21. The royal family lived a life of luxury often indulging in lavish and costly purchases.
22. The concept of time and its relation to events is explored in the study of dynamics.
23. The company introduced an approach to product design revolutionizing the market.
24. The chef created a new dish with a unique profile combining sweet and spicy tastes.
25. The outcome of the experiment was met with due to conflicting results.
26. Effective managerial skills involve understanding relationships within a team.
27. The artist's paintings were known for their themes leaving viewers questioning the meaning.
28. Light passing through a narrow slit demonstrates the principle of .
29. The concept of time and its relation to events is explored in the study of dynamics.
30. Weather forecasting involves analyzing models to predict future conditions.

**Answer**

**Multiple Choice:** 1. Constitute 2. Ritual 3. Magnetosphere 4. Enigmatic 5. Microbiome 6. Infiltrate  
7. Hallucinogenic 8. Emissions 9. Probabilistic 10. Ailments

**Gap-Fill:** 11. Implication 12. Acknowledge 13. Ascertain 14. Catalyze 15. Concoction 16. Elucidates  
17. Interference



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18. Correlating 19. Facilitating 20. Phenomenon

**Matching sentence:** 1. Extravagant 2. Temporal 3. Innovative 4. Flavored 5. Uncertainty 6. Interpersonal  
7. Enigmatic 8. Diffraction 9. Temporal 10. Probabilistic

**CATEGORY**

1. Sci/Tech - LEVEL5

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