

### Part I Reading Comprehension

A hormone that **extends** lifespan in mice by 40% is produced by specialized cells in the thymus gland, according to a new study by Yale School of Medicine researchers. The team also found that increasing the levels of this hormone, called FGF21, protects against the loss of immune function **that** comes with age.

Published online in the *Proceedings of the National Academy of Sciences* on Jan. 11, the study's findings have future implications for improving immune function in the elderly, for obesity, and for illnesses **such as** cancer and type-2 diabetes.

When functioning normally, the thymus produces new T cells for the immune system, but with age, the thymus becomes fatty and loses **its** ability to produce new T cells. This loss of new T cells in the body is one cause of increased risk of infections and certain cancers in the elderly.

Led by Vishwa Deep Dixit, professor of comparative medicine and immunobiology at Yale School of Medicine, the researchers studied transgenic mice with elevated levels of FGF21. The team knocked out the gene's function and studied the impact of decreasing levels of FGF21 on the immune system. **They** found that increasing the levels of FGF21 in old mice protected the thymus from age-related fatty degeneration and increased the ability of the thymus to produce new T cells, **while** FGF21 deficiency accelerated the degeneration of the thymus in old mice.

"We found that FGF21 levels in thymic epithelial cells is several fold higher than in the liver - - therefore FGF21 acts within the thymus to promote T cell production," said Dixit.

"Elevating the levels of FGF21 in the elderly or in cancer patients **who** undergo bone marrow transplantation **may** be an additional strategy to increase T cell production, and **thus** bolster immune function," said Dixit.

Dixit added that FGF21 is produced in the liver as an endocrine hormone. Its levels increase when calories are restricted to **allow** fats to be burned when glucose levels are low. FGF21 is a metabolic hormone that improves insulin sensitivity and also induces weight loss; therefore **it** is being studied for its therapeutic effects in type-2 diabetes and obesity.

**Read the article and tick (✓) A, B, or C.**

1. According to a study by Yale School of Medicine researchers, a hormone that extends lifespan in mice by 40% is produced by specialized cells in the kidneys.  
A True            B False            C Doesn't say
2. The Yale School of Medicine researchers also found that reducing the levels of FGF21 protects against the loss of immune function that comes with age.  
A True            B False            C Doesn't say
3. The Yale study's findings have future implications for improving immune function in the elderly, for obesity, and for illnesses such as cancer and type-2 diabetes.  
A True            B False            C Doesn't say
4. With age, the thymus becomes fatty and produces more new T cells.  
A True            B False            C Doesn't say
5. One of the reasons why the elderly are at increased risk of infections and certain cancers is the loss of new T cells in the body.  
A True            B False            C Doesn't say

6. The researchers, led by Vishwa Deep Dixit, studied transgenic mice with low levels of FGF21.  
A True                      B False                      C Doesn't say
7. It was found that decreasing the levels of FGF21 in old mice protected the thymus from age-related fatty degeneration and increased the ability of the thymus to produce new T cells, while FGF21 deficiency slowed the degeneration of the thymus in old mice.  
A True                      B False                      C Doesn't say
8. Vishwa Deep Dixit has worked at the Yale School of Medicine for over a decade.  
A True                      B False                      C Doesn't say
9. FGF21 levels increase when calories are restricted to allow fats to be burned when glucose levels are low.  
A True                      B False                      C Doesn't say

**Match the underlined words or expressions in the text to the word or expression with a similar meaning below.**

10. \_\_\_\_\_ = whereas                      13. \_\_\_\_\_ = enable  
11. \_\_\_\_\_ = therefore                      14. \_\_\_\_\_ = could  
12. \_\_\_\_\_ = increases                      15. \_\_\_\_\_ = for example

**What do these words refer to? Choose (a), (b), or (c).**

- |                                 |                           |                         |
|---------------------------------|---------------------------|-------------------------|
| 16. <b>that</b> (line 4)        | 18. <b>They</b> (line 15) | 20. <b>it</b> (line 27) |
| (a) the team                    | (a) The team              | (a) FGF21               |
| (b) FGF21                       | (b) the gene's function   | (b) obesity             |
| (c) the loss of immune function | (c) old mice              | (c) weight loss         |
- 
- |                         |                          |
|-------------------------|--------------------------|
| 17. <b>its</b> (line 9) | 19. <b>who</b> (line 21) |
| (a) the thymus          | (a) the elderly          |
| (b) new T cells         | (b) cancer patients      |
| (c) the immune system   | (c) Dixit                |

## **PART II A**

**Complete each sentence with the correct expression.**

1. There is \_\_\_\_\_ to support the hypothesis.  
a) Few evidences                      b) little evidence                      c) few evidence
2. We used a new method \_\_\_\_\_ the subjects' overall fitness.  
a) to assess                      b) for to assess                      c) in order for assessing
3. The method enabled \_\_\_\_\_ more accurate measurements.  
a) us make                      b) us making                      c) us to make
4. This protocol induced \_\_\_\_\_ accumulation in all the subjects.  
a) carbohydrates                      b) carbohydrate                      c) the carbohydrate
5. A new indoor facility allowed \_\_\_\_\_ through the winter months.  
a) us to train                      b) us training                      c) to train



### Past Simple / Present Perfect Simple

Complete the sentences with the correct form of the verbs in brackets.

6. Where..... (you/spend) your holiday last summer?
7. I can't take any pictures because I..... (not/buy) a camera yet.
8. ....(you/ever/see) a whale?
9. Our cousins ..... (arrive) late last night.
10. We..... (know) Katy and Pete since we were kids, and we're still close friends.

Complete with the **Past Continuous** , **Past Simple** or **Past Perfect**.

- 11./12. When we ..... (arrive) at the theater, the show .....(already/start) and we weren't allowed to enter until the intermission.
- 13./14. It .....(rain) hard when we ..... (leave) the pub.
- 15./16. I ..... (break) my arm while I ..... (play) football.

Complete the sentences with **will**, **going to** or **the present continuous**.

17. Bye for now. Perhaps I .....(see) you later.
18. We already have plans for the weekend. We .....(visit) some relatives in New York.
19. Look at those black clouds! It ..... (rain).
20. Those bags look very heavy. I..... (help) you carry them to the car.

### Relative Clauses

Complete the sentences with a relative pronoun: **who**, **which**, **where**, **whose**, **that**.

21. My brother Dave, ..... is a lawyer, is going to help us in the negotiations.
22. The pizza ..... we ordered wasn't very good.
23. The Boeing 747, ..... is one of the largest commercial airplanes, has an excellent safety record.
24. I recently went back to the town ..... I grew up.
25. .... notebook is this? It's not mine.

### Comparatives and Superlatives

Complete the following sentences using a suitable form of the adjectives in brackets. Add **than**, **the** or **as** if necessary.

26. This is ..... (good) restaurant in town.
27. My new job is ..... (stressful) my old one.
28. This is .....(relaxing) holiday I've ever had!
29. She's much .....(talkative) her sister.
30. The movie wasn't as .....(scary) we expected.

## Articles

Complete the sentences with **a/an, the, or -** (no article).

31. They say that .....love makes the world go around.
32. Her father is ..... pilot.
33. They are currently doing research on .....stem cells.
34. I forgot to lock ..... front door when I left the house this morning.
35. The diet can help reduce the incidence of ..... diabetes.

Complete the sentences with the **-ing form** or **infinitive** of the verbs in brackets.

36. Would you mind ..... (help) me with the dishes?
37. I'm thinking of ..... (take) a year off before starting university.
38. She went to Ireland ..... (improve) her English.
39. .... (eat) too much red meat is very unhealthy.
40. It's important ..... (get) plenty of sleep.

Complete the **conditional** sentences with the right verb form.

41. If I ..... (have) more time, I'd learn another language.
42. We ..... (help) you if we had been there.
43. If we ..... (miss) the bus, we'll take a taxi.
44. If I had known you were in hospital, I .....(go) to visit you.
45. If I ..... (know) his number, I would phone him.
46. If I ..... (find) a wallet in the street, I'd take it to the police.

Rewrite the sentences in **the Passive Voice**. Maintain the same verb tense as the active sentence.

**Example:** Van Gogh painted this picture of sunflowers.

This picture of sunflowers was painted by Van Gogh.

47. They are repairing the damaged bridge.  
The damaged bridge .....
48. You must make the final payment by the end of the month.  
The final payment .....
49. They have changed the exam format.  
The exam format.....
50. They destroyed most of the city.  
Most of the city .....
51. They make car parts in this factory.  
Car parts .....

Change the following statements into *reported speech*.

- 52. 'I've quit my job.' John said .....
- 53. 'I can't come to the meeting this afternoon.' She said .....
- 54. 'We're going away for a few days.' They said .....
- 55. 'Where do you live?' They asked us .....
- 56. 'Do you like dancing?' She asked me .....

### Key

#### Part I

- 1. B
- 2. B
- 3. A
- 4. B
- 5. A
- 6. B
- 7. B
- 8. C
- 9. A
- 10. while
- 11. thus
- 12. extends
- 13. allow
- 14. may
- 15. such as
- 16. C
- 17. A
- 18. A
- 19. B
- 20. A

#### Part II A

- 1. B
- 2. A
- 3. C
- 4. B
- 5. A
- 6. C
- 7. A
- 8. A
- 9. B
- 10. B
- 11. A
- 12. B
- 13. B
- 14. C
- 15. C
- 16. C

**Part II B Both contractions and full forms can be used in Part II B.**

1. sleeps
2. is listening
3. am trying
4. want
5. are you doing
6. did you spend
7. haven't bought
8. Have you ever seen
9. arrived
10. have known
11. /12. arrived; had already started
- 13./14. was raining; left
- 15./16. broke/was playing
17. will see
18. are visiting/are going to visit
19. is going to rain
20. will help
21. who
22. that/which
23. which
24. where
25. Whose
26. the best
27. more stressful than
28. the most relaxing
29. more talkative than
30. scary as
31. –
32. a
33. –
34. the
35. –
36. helping
37. taking
38. to improve
39. Eating
40. to get
41. had
42. would have helped
43. miss
44. would have gone
45. knew
46. found
47. is being repaired
48. must be made by the end of the month
49. has been changed
50. was destroyed
51. are made
- 52, that he had quit his job
53. that she couldn't come to the meeting that afternoon
54. that they were going away for a few days

55. where we lived
56. if I liked dancing