

## I . Read the following passage and answer the questions below.

① Learning a second language as an adult is difficult. But the process may be eased if you exercise while learning. A new study reports that working out during a language class amplifies people's ability to memorize, retain, and understand new vocabulary. The findings provide more evidence that to engage our minds, we should move our bodies.

② In recent years, a wealth of studies in both animals and people have shown that we learn differently if we also exercise. Lab rodents given access to running wheels create and maintain memories better than animals that are sedentary, for instance. And students consistently perform better on academic tests if they participate in some kind of physical activity during the school day. Many scientists suspect that exercise alters the biology of the brain in ways that make it more malleable and receptive to new information, a process that scientists refer to as plasticity. But many questions have remained unanswered about movement and learning, including whether exercise is most beneficial before, during or after instruction, and how much and what types of exercise might be best.

③ So for the new study, which was published recently in an open-access journal called PLOS One, researchers in China and Italy decided to home in on language learning and the adult brain. Language learning is interesting. As young children, almost all of us picked up our first language easily. We didn't have to be formally taught; we simply absorbed words and concepts. But by early adulthood, the brain generally begins to lose some of its innate language capability. It displays less plasticity in areas of the brain related to language. As a result, for most of us, it becomes harder to learn a second language after childhood.

④ To see what effects exercise might have on this process, the researchers first recruited 40 college-age Chinese men and women who were trying to learn English. The students had some facility with this second language but were far from proficient. The researchers then divided the students into two groups. Those in one group would continue to learn English as they had before, primarily while seated in rote vocabulary-memorization sessions. The others would supplement these sessions with exercise. Specifically, the students would ride exercise bikes at a gentle pace (about 60 percent of their maximum aerobic capacity) beginning 20 minutes before the start of the lessons and continuing throughout the 15 minutes or so of instruction. Both groups learned their new vocabulary by watching words projected onto large screens, together with comparable pictures, such as "apple" and the image of a Red Delicious. They were shown 40 words per session, with the sequence repeated several times.

⑤ Afterward, the students all rested briefly and then completed a vocabulary quiz, using computer keys to note as quickly as possible whether a word was with its correct picture. They also responded to sentences using the new words, marking whether the sentences were accurate or, in the case of "The apple is a dentist," nonsensical. Most linguists feel that understanding sentences shows greater mastery of a new language than does simple vocabulary improvement.

⑥ The students completed eight vocabulary sessions over the course of two months. And at the end of each lesson, the students who had ridden bikes performed better on the subsequent vocabulary tests than did the students who sat still. They also became more proficient at recognizing proper sentences than the sedentary students, although that difference did not emerge until after several weeks of instruction.

⑦ Perhaps most interesting, the gains in vocabulary and comprehension lingered longest for the cyclists. When the researchers asked the students to return to the lab for a final round of testing a month after the lessons — without practicing in the meantime — the cyclists remembered words and understood them in sentences more accurately than did the students who had not moved. "The results suggest that physical activity during learning improves that learning," says Simone Sulpizio, a professor of psychology and linguistics at the University Vita-Salute San Raffaele in Milan, Italy, and a study co-author. These improvements extend beyond simply aiding in memorization, she added. The exercise also deepened language learners' grasp of how to use their newly acquired words.

⑧ This study involved college students performing relatively light exercise, though, and cannot tell us

whether other people completing other types of exercise would achieve the same results. It also offers no clues about what is occurring inside the brain that might be contributing to the benefits of the exercise. But many past studies have shown that exercise prompts the release of multiple neurochemicals in the brain that increase the number of new brain cells and the connections between neurons, Dr. Sulpizio says. These effects improve the brain's plasticity and augment the ability to learn.

⑨ From a real-world standpoint, the study's implications might seem at first to be impractical. Few classrooms are equipped with stationary bicycles. But specialized equipment is probably unnecessary, Dr. Sulpizio says. "We are not suggesting that schools or teachers buy lots of bicycles," she says. "A simpler take-home message may be that instruction should be flanked by physical activity. Sitting for hours and hours without moving is not the best way to learn."

[Adapted from *New York Times* (16 August 2017)]

(1) Choose the best way to complete the sentences about Paragraphs ① to ⑨.

1. In Paragraph ① the writer mainly
2. In Paragraph ② the writer mainly
3. In Paragraph ③ the writer mainly
4. In Paragraph ④ the writer mainly
5. In Paragraph ⑤ the writer mainly
6. In Paragraph ⑥ the writer mainly
7. In Paragraph ⑦ the writer mainly
8. In Paragraph ⑧ the writer mainly
9. In Paragraph ⑨ the writer mainly

- A. analyses the limitations of the study and addresses how the findings can be applied to the educational environment.
- B. compares the results of the vocabulary tests of the students who engaged in physical activity and those who remained sedentary.
- C. defines the concept of plasticity and examines how it is applied to the process of language learning during various stages in life.
- D. describes the characteristics of the people who participated in the study, how they were classified into groups, and how each group learned new vocabulary.
- E. discusses how animals and people learn differently if they participate in physical activities while they learn.
- F. explains what kinds of tests were used in order to examine the effects exercise might have had on the process of language learning.
- G. expresses doubt about an opinion from an expert explaining the biological mechanism that contributes to the benefits of exercise.
- H. highlights the gap between what we know and do not know about the relationship between exercise and learning.
- I. presents a common view among linguists that understanding sentences demonstrates greater mastery of a new language.
- J. presents a comparative view of plasticity by describing our changing language abilities during and after childhood.
- K. summarizes the limitations of the study that constrain the generalizability of the research findings.
- L. summarizes the scope, main points, and implications of the study introduced in the passage.
- M. supports the idea that the cyclists not only memorized new words better but also retained the knowledge longer.

- (2) Choose the best way to complete each of these sentences.
1. It is difficult for adults to learn a second language because \_\_\_\_\_.
    - A. adult brains experience a decrease in plasticity
    - B. adult brains lose their innate capability to memorize
    - C. they have already learned their first language
    - D. they no longer have to attend formal education
  2. In the study, 40 participants were divided into two groups and \_\_\_\_\_.
    - A. both of them continued their sessions for more than two months
    - B. neither group learned new vocabulary with comparable pictures
    - C. one of the two had exercise before and during memorization
    - D. only those in one group included fluent English speakers
  3. A weakness of the study mentioned in the passage is that \_\_\_\_\_.
    - A. it does not address the unreasonable cost of equipment
    - B. it does not take gender difference into account
    - C. it is difficult to generalize from the findings
    - D. its findings are consistent with those of past research
- (3) Choose the best way to complete each of these sentences, which relates to the underlined words.
1. Here “malleable” in paragraph ② means
    - A. acceptable.
    - B. adaptable.
    - C. consistent.
    - D. stringent.
  2. Here “proficient” in paragraph ④ means
    - A. credible.
    - B. feeble.
    - C. fluent.
    - D. persistent.

## II. Read the following passage and answer the questions below.

Dieting has been an American preoccupation since long before the obesity epidemic took off in the 1980s. In the 1830s, Presbyterian minister Sylvester Graham touted a vegetarian diet that excluded spices, condiments, and alcohol. At the turn of the 20th century, it was fashionable to chew food until liquefied, sometimes up to 722 times before swallowing, thanks to the advice of a popular nutrition expert named Horace Fletcher. Lore has it that at about the same time, President William Howard Taft adopted a fairly contemporary plan—low fat, low calorie, with a daily food log—after he got stuck in a White House bathtub.

The concept of the calorie as ( 1 ) had been studied and shared in scientific circles throughout Europe for some time, but it wasn't until World War I that calorie counting became de rigueur in the U.S. Amid global food shortages, the American government needed a way to encourage people to cut back on their food intake, so it issued its first ever “scientific diet” for Americans, which had calorie counting at its core.

In the following decades, when being rail-thin became ever more desirable, nearly all dieting advice stressed meals that were low calorie. There was the grapefruit diet of the 1930s and the cabbage-soup diet of the 1950s.

The 1960s ( 2 ) the beginning of the massive commercialization of dieting in the U.S. That's when a New York housewife named Jean Nidetch began hosting friends at her home to talk about their issues with weight and dieting. Nidetch was a self-proclaimed cookie lover who had struggled for years to slim down. Her weekly meetings helped her so much—she lost 72 lb. in about a year—that she ultimately turned those living-room gatherings into a company called Weight Watchers. When ( 3 ) in 1968, she and her co-founders became millionaires overnight. Nearly half a century later, Weight Watchers remains one of the most commercially successful diet companies in the world, with 3.6 million active users and \$1.2 billion in revenue in 2016.

What most of these diets had in common was an idea that is still popular today: eat fewer calories and you will lose weight. Even the low-fat craze that kicked ( 4 ) in the late 1970s—which was based on the intuitively appealing but incorrect notion that eating fat will make you fat—depended on the calorie counting model of weight loss. (Since fatty foods are more calorie-dense than, say, plants, logic suggests that if you eat less of them, you will consume fewer calories overall, and then you'll lose weight.)

That's not what happened when people went low fat, though. The diet trend coincided with weight gain. In 1990, adults with obesity made up less than 15% of the U.S. population. By 2010, most states were reporting obesity in 25% or more of their populations. Today that has swelled to 40% of the adult population. For kids and teens, it's 17%.

Research conducted by Kevin Hall, a scientist at the National Institute of Health (NIH), is beginning to explain why. As demoralizing as his initial findings were, they weren't altogether surprising: more than 80% of people with obesity who lose weight gain it back. That's because when you lose weight, your resting metabolism (how much energy your body uses when at rest) slows down—possibly an evolutionary holdover from the days when food scarcity was common.

For the 2.2 billion people around the world who are overweight, Hall's findings can seem like a formula for failure—and, at the same time, scientific vindication. They show that it's indeed biology, not simply a lack of willpower, that makes it so hard to lose weight. The findings also make it seem as if the body itself will sabotage any effort to keep weight off in the long term.

But a slower metabolism is not the full story. Despite the biological ( 5 ), there are many people who succeed in losing weight and keeping it off. Hall has seen it happen more times than he can count. The catch is that some people appear to succeed with almost every diet approach—it just varies from person to person.

Understanding what it is about a given diet that works for a given person remains the holy grail of weight-loss science. But experts are getting closer.

[Adapted from *Time* (5 June 2017)]

(1) Choose the ONE way to complete each of these sentences that is NOT correct according to the passage.

1. In America,

- A. people who want to lose weight have not only been interested in what they eat but in how they eat.
- B. modern ways of dieting were already known before the First World War.
- C. a New York housewife established a company that helps people who are fighting obesity and trying to lose weight.
- D. some people seem to be successful with any diet method only because they maintain their firm determination in dieting.

2. Dieting

- A. commonly means eating low-fat and low-calorie food to keep weight off.
- B. was a matter of government concern because it had to provide people with enough food.
- C. had never been a social issue before calorie counting was introduced after World War I in America.
- D. sometimes stimulates normal physical reactions that eventually result in failure.

3. Rebound weight gain may be due to

- A. our genetic and ancestral legacy from the pre-historic past.
- B. the biological and unavoidable response of our body.
- C. our resting metabolism that slows down when we don't have enough food.
- D. our sense of accomplishment that stimulates our brains to react.

4. Hall's findings

- A. were the key to understanding why dieting often results in weight gain.
- B. were not very surprising because they were biologically reasonable.
- C. were revolutionary because they were statistically proved and had been commonly believed to be true.
- D. suggested that dieting is more difficult than we think because of the effects of our biology.

5. The author writes that

- A. in America many people are obsessed with the idea that they should be slim.
- B. eating low-calorie food such as vegetables is the very best way of dieting.
- C. dieting sometimes gives people a business opportunity to build up a large fortune.
- D. the best way of dieting for a particular person has not been identified even today.

(2) Choose the ONE option that best fits each of the blanks ( 1 ) to ( 5 ) in the passage.

1.

- A. a unit of energy
- B. a unit of food
- C. a unit of nutrition
- D. a unit of obesity

2.

- A. became
- B. gave
- C. saw
- D. took

- 3.
- A. it went easy
  - B. it went public
  - C. it went shares
  - D. it went steady

- 4.
- A. off
  - B. on
  - C. out
  - D. over

- 5.
- A. advantages
  - B. failures
  - C. matters
  - D. odds

(3) Choose the best way to complete each of these sentences, which relates to the underlined words and phrases.

1. Here "Lore has it" means

- A. people find.
- B. people know.
- C. people remember.
- D. people say.

2. Here "de rigueur" means

- A. controversial.
- B. regulated.
- C. reliable.
- D. standard.

3. Here "ultimately" means

- A. aggressively.
- B. eventually.
- C. positively.
- D. unwillingly.

4. Here "demoralizing" means

- A. amazing.
- B. debasing.
- C. discouraging.
- D. disregarding.

5. Here "the holy grail" means

- A. a cradle.
- B. a motivation.
- C. a mystery.
- D. an aspiration.

### III. Read the following passage by professional tennis player Serena Williams and answer the questions below.

Today is Black Women’s Equal Pay Day. This day shines a light on the long-neglected fact that the gender pay gap hits women of color the hardest. Black women are 37 cents behind men in the pay gap—in other words, for every dollar a man makes, black women make 63 cents.

I’d like to acknowledge the many realities black women face every day. To recognize that women of color have to work—on average—eight months longer to earn the same as their male counterparts do in one year. To bring attention to the fact that black women earn 17% less than their white female counterparts and that black women are paid 63% of the dollar men are paid. Even black women who have earned graduate degrees get paid less at every level. This is as true in inner cities as it is in Silicon Valley.

Together, we will change the story—but we are going to have to fight for every penny. Growing up, I was told I couldn’t accomplish my dreams because I was a woman and, more so, because of the color of my skin. In every stage of my life, I’ve had to learn to stand up for myself and speak out. I have been treated unfairly, I’ve been disrespected by my male colleagues and—in the most painful times—I’ve been the subject of racist remarks on and off the tennis court. Luckily, I am blessed with an inner drive and a support system of family and friends that encourage me to move forward. But these injustices still hurt.

I am in the rare position to be financially successful beyond my imagination. I had talent, I worked like crazy, and I was lucky enough to break through. But today isn’t about me. It’s about the other 24 million black women in America. If I never picked up a tennis racket, I would be one of them; that is never lost on me.

The cycles of poverty, discrimination, and sexism are much, much harder to break than the record for Grand Slam titles. For every black woman that rises through the ranks to a position of power, there are too many others who are still struggling. Most black women across our country do not have the same support that I did, and so they often don’t speak out about what is just, fair, and appropriate in the workplace. When they do, they are often punished for it. Unfair pay has prevailed for far too long with no consequence. In many cases, these women are the heads of households. Single mothers. The issue isn’t just that black women hold lower-paying jobs. They earn less even in fields of technology, finance, entertainment, law, and medicine.

Changing the status quo will take dedicated action, legislation, employer recognition, and courage for employees to demand more. In short, it’s going to take all of us—men and women of all colors, races, and creeds—to realize this is an injustice. And an injustice to one is an injustice to all.

The first step in making a change is recognition. We need to push this issue to the front of conversations so that employers across the U.S. can truly understand that all male and female employees must be compensated equally. Not close. Not almost the same. ( 1 ).

Recently, I have joined SurveyMonkey’s board of directors, with this specific initiative in mind. SurveyMonkey wants to make information accessible so that all of us can make informed decisions. As they say: knowledge is power. As a black female entrepreneur and person in the spotlight, I am trying to figure out how I can move the needle forward and open doors for everyone, no matter the color of their skin. But I want to start with the wage gap.

In celebration of Equal Pay Day for Black Women, I partnered with SurveyMonkey to find out Americans’ opinions on the pay gap. The response was powerful. Here are the key findings:

- Sixty-nine percent of black women perceive a pay gap, while just 44% of white men recognize the issue.
- Nearly two-thirds of black women say that major obstacles remain for women in the workplace.
- In addition to gender, black women see obstacles to racial equality: three-quarters of black women workers say there are still significant hurdles holding back minorities.

· Still, some black women remain optimistic: more than 43% of black millennial women believe men and women have equal opportunities for promotion.

While a majority of those surveyed believe that the pay gap is real for both women and minorities, not everyone understands that black workers—specifically women—see more obstacles to racial equality and barriers in the workplace. Data doesn't lie. It just gives a number to the gap women feel every day. It is my hope that I can give a voice to those who aren't heard in Silicon Valley, and the workforce as a whole.

I want to bring my perspective and experiences as an athlete, an entrepreneur, and a black woman to the boardroom and help create a more inclusive environment in this white, male-dominated industry. And I want every woman of color to do the same. Every step forward you take is two steps of progress for womankind. Let today serve as a reminder that we have a voice. We deserve equal pay for our mothers, our wives, our daughters, our nieces, friends, and colleagues—but mostly, for ourselves.

Black women: Be fearless. Speak out for equal pay. Every time you do, you're making it a little easier for a woman behind you. Most of all, know that you're worth it. It can take a long time to realize that. It took me a long time to realize it. But we are all worth it. I've long said, "You have to believe in yourself when no one else does."

Let's get back those ( 2 ).

[Adapted from Fortune.com (31 July 2017)]

- (1) On the basis of the passage, fill in T for the true statements and F for the false ones.
- A. Black women are not unfairly treated in show business in terms of pay.
  - B. Black women with graduate degrees do not suffer from the pay gap.
  - C. Nobody doubted that Serena Williams would be successful as a professional tennis player.
  - D. Serena Williams has been subjected to abuse at work as well as privately.
  - E. The first thing to be done to end discrimination against black women is awareness-raising.
- (2) Choose the best way to complete each of these sentences, which relates to the underlined words in the passage.
1. Here "speak out" means
- A. speak one's opinion continuously.
  - B. speak one's opinion eloquently.
  - C. speak one's opinion publicly.
  - D. speak one's opinion sincerely.
2. Here "has prevailed" means
- A. has been everywhere.
  - B. has been neglected.
  - C. has been problematic.
  - D. has been talked about.
3. Here "creeds" means
- A. ages.
  - B. faiths.
  - C. orientations.
  - D. ranks.



4. Here "initiative" means

- A. ability.
- B. assumption.
- C. leadership.
- D. plan.

5. Here "inclusive" means

- A. not asymmetrical.
- B. not competitive.
- C. not convergent.
- D. not discriminatory.

(3) Choose the ONE option that best fits each of the blanks ( 1 ) and ( 2 ) in the passage.

1.

- A. By all means
- B. Equally
- C. Even more
- D. Truly

2.

- A. 17%
- B. 37 cents
- C. eight months
- D. every penny

IV. Choose the ONE word or phrase that best completes the sentence.

1. His speculation bordered on \_\_\_\_\_ absurd.  
A. an  
B. some  
C. the  
D. [Nothing is necessary.]
2. She \_\_\_\_\_ me out of selling the painting.  
A. advised  
B. talked  
C. urged  
D. warned
3. To become a president of a company, one must \_\_\_\_\_ extraordinary leadership skills and confidence.  
A. had  
B. have  
C. have been had  
D. have had
4. Katy will provide financial support for her son to go to university, \_\_\_\_\_ he promises to study hard.  
A. however  
B. provided  
C. unless  
D. whether
5. Please don't forget to \_\_\_\_\_ your report when you come back to the office tomorrow.  
A. turn in  
B. turn off  
C. turn out  
D. turn up

V. Choose the ONE underlined word or phrase in each sentence below that is grammatically INCORRECT.

1. Approximately twenty-five million people in this country suffer serious hearing loss, and the likely cause in more than a third of the cases are too much exposure to loud noise. (A) (B)  
(C) (D)
2. *Gulliver's Travels*, first published in 1726, has since being translated into over twenty languages. (A) (B) (C) (D)
3. I would have suggest that Jack take a rest for a few days before returning to work, after climbing in the Himalayas. (A) (B) (C) (D)
4. Not only did the palm tree triple in height but double in wide after three years of observation. (A) (B) (C) (D)
5. By far as I am concerned, the problem with the new apartment is not its cost but its inconvenience. (A) (B) (C) (D)

{ 以 下 余 白 }

早稲田大学 スポーツ科学部  
2018年度 入試問題の訂正内容

<スポーツ科学部 一般入試>

【英語】

●問題冊子6ページ：設問Ⅱ（2）－1 選択肢D.

(誤)

D. a unit of obesity

(正)

D. a unit of obesity

以上