

## 読解問題演習 101

(産業医科大・医 2018)

次の英文を読んで設問に答えなさい。

What makes some men greedy and others generous? Why did Bill Gates, for example, give more than \$28 billion in charity while many other wealthy men kept relatively tight control over their personal fortunes? New evidence reveals a surprising answer. The mere presence of female family members — even infants — can be enough to make men more generous.

In an interesting new study, researchers examined generous behavior and what inspires it in wealthy men. Rather than looking at giving to charity, they looked at why some male chief executives of companies paid their employees more generously than others. The researchers tracked the wages that male chief executives at more than 10, 000 Danish\*<sup>1</sup> companies paid their employees over the course of a decade.

Interestingly, the chief executives paid their employees less after becoming fathers. On average, after chief executives had a child, they paid about \$100 less in annual compensation per employee. To provide well for his family, the researchers write, it's all too common for a male chief executive to claim "his firm's resources for himself and his growing family, at the expense of his employees."

But there was (1)a twist. When the researchers examined the data more closely, the changes in pay depended on the gender\*<sup>2</sup> of the child of the chief executive. They reduced wages after having a son, but not after having a daughter. Daughters apparently make fathers kind and inspire in them the tendency to take care of others. The speculation is that as we brush our daughters' hair and take them to dance classes, we become gentler and get a deeper understanding of other people's emotions.

Is it even possible that simply being close to infant girls can prompt us to be more generous? Additional studies, in a variety of fields, suggest this is the case — and that it might extend beyond daughters. Consider, for example, (2)one study in which a professor of psychology set up a game in which more than 600 people made choices about sharing resources with someone they didn't know and would never meet again. The participants\*<sup>3</sup> chose between these basic options:

(a) You get \$25 and your partner gets \$10.

(b) You get \$20 and your partner gets \$30.

The first option is the selfish one; you're claiming most of the resources for yourself. The latter option is more generous as it involves sacrificing a small amount (\$5) to increase your partner's gains by a much larger amount (\$20).

The players expressed consistent preferences in each of the nine rounds they played. The data showed that players who made the more generous choices had more brothers and sisters. Those who were generous had an average of two brothers and sisters; the others averaged one and a half. More brothers and sisters means more sharing, which seems to influence people toward giving.

And once again, gender mattered. The generous participants were 40 percent more likely to have sisters than the people who made more selfish, competitive choices. In relation to that, there is also another study showing that the more sisters a father has, the more time he spends raising his own children. After growing up with sisters, men who have opportunities to give are more likely to do so.

Social scientists believe that the female behaviors of sisters influence their brothers. It might also be that boys feel the desire to protect their sisters, and studies find that men are significantly more likely to help women than to help men. Indeed, some of the men who give the most to charities acknowledge the inspiration provided by the women in their lives.

In a 2007 presentation in San Francisco, a psychologist\*<sup>4</sup> asked, "Is there anything good about men?" Some people would say, "Not much." But our good point, the psychologist argues, is that across a wide range of characteristics, "men go to extremes more than women." Men are responsible for most of the worst aggressive and selfish acts, but they also engage in some of the most extreme acts of helping and being generous. On this point, there is evidence that whereas many women prefer to share equally, men are more likely to be either perfectly selfish or perfectly generous. It may be that close contact with women is one of the forces that make men more generous.

The effect of women on men has important implications\*<sup>5</sup> for education and work. In schools, we need to think carefully about how we organize children into groups. Students can learn to respect and care about one another if they have to rely upon one another when working together in small groups toward shared goals. If each student is responsible for teaching the group about a different topic that would be covered on a coming test, then the group would need pieces of information from every member in order to put together the general understanding that would be measured on the test. What would happen if every classroom followed this structure, with mixed-gender study groups providing boys with the opportunity to learn from girls? In addition to gaining knowledge, perhaps they would learn something about teaching, helping and caring for others.

At work, we have a great need for more women in leadership positions. We already know from considerable research that companies function better

when they have more women in top management roles, especially when it comes to innovation.\*<sup>6</sup> (3)Researchers have recently shown that between 1992 and 2006, when companies introduced women onto their senior executive teams, they generated\*<sup>7</sup> an average of 1 percent more economic value, which usually meant more than \$40 million.

We recognize the direct advantages of women as leaders, which often include a variety of perspectives, ways of working together in cooperation, guidance of newer workers, and keen understanding of female employees and customers. But we've largely overlooked the benefit that women have on the men around them. Is it possible that when women join top management teams, they encourage male colleagues to be more generous to employees and to share knowledge more freely? Increases in motivation,\*<sup>8</sup> cooperation, and innovation in companies may be fueled not only by the direct actions of female leaders, but also by their influence on male leaders.

【Adapted from "Why Men Need Women," by Adam Grant, *The New York Times Online*, July 20, 2013】

[注] \*1 Danish: デンマークの

\*2 gender: 性

\*3 participant: 参加者

\*4 psychologist: 心理学者

\*5 implication: (予想される)影響・結果

\*6 innovation: 新しい考え、革新

\*7 generate: 生み出す、作り出す

\*8 motivation: 意欲、やる気

[設問]

1. 下線部(1)について、本文の内容に沿って日本語で説明しなさい。

2. 下線部(2)の結果分かったことを2点、本文の内容に沿って日本語で書きなさい。

3. 下線部(3)を日本語に訳しなさい。

4. 本文の内容に関する次の文(1)～(5)を読み、正しいものには○、間違っているものには×を、それぞれ記入しなさい。

- (1) In the second paragraph, in the phrase "... more generously than others," the word "others" refers to other employees.
- (2) Researchers concluded that daughters make fathers gentler through daily behaviors such as brushing their daughters' hair or taking them to dance classes.
- (3) Although men can be more aggressive than women, they can also be more generous.
- (4) The advantage of the mixed-gender study group in the classroom is to provide the opportunity for girls to learn to gain knowledge, teach, help and care for others.
- (5) Companies with female executives have a good understanding of female customers.

## 読解問題演習 102

次の英文を読み、下線部(ア)、(イ)、(ウ)を和訳せよ。ただし下線部(ア)を和訳する際、“these changes”が指す内容を明らかにすること。

The slave trade involving Africa was a direct result of economic greed and racism from the slave trading countries. By creating a displeasing image of African Americans and others taken into slavery, they were not treated or thought of as people. This mindset led to widespread violence and the mistreatment of slaves. By examining firsthand accounts of life on a slave ship to graphs of population change between 1700 and 1900 it is clear that while every region experienced similarities during the slave trade, east and west Africa were each affected in a unique way as east Africa saw an increase in disease and sickness, while west Africa saw a change in marital patterns. These changes clearly demonstrate the power and effect the slave trade had on Africa. (ア)Even after the slave trade ended, these changes would endure for centuries.

(イ)European leaders created a new view of African Americans in the 1600s, using manipulation tactics to tell the public that slaves were no better than animals. This ideology spread and created a culture of racism surrounding the slave trade that affected Africa as well as developed nations. The Europeans took control by using religion and manipulation tactics to demean slaves and create a mindset in developed countries that slaves were not equal, which eventually turned slavery into a race issue. The way slaves were captured was in many ways inhumane and involved kidnapping, coercion, and political leverage. They created the illusion they were more similar to animals, “they were all branded, like sheep”, which suggests that they are no better than the livestock in the fields. (ウ)The mindset of slavery was, while slaves “were also recognized as human beings, their fundamental characteristic was that they were commodities”. In addition to their treatment after they were transported, the journey to get to their new homes was horrifying by itself.

【Adapted from " The African Slave Trade, Coast to Coast," by Amanda Schumacher, Washington State University, August 27, 2015】

### 読解問題演習 103

次の英文を和訳しなさい。

(兵庫医科大・医 2018)

When we think about giving, we often think about grand gestures, setting aside hours or days to volunteer, mentor, or contribute to some person or group we want to see rise. Or we think about specific charities, foundations, and organizations to donate to. But giving even on the smallest level has power. So often, we miss the momentary opportunities to contribute, the countless moments to be generous, to help, to be of service in the moment, for a moment.

出典: Jonathan Fields, *How to Live a Good Life: Soulful Stories, Surprising Science and Practical Wisdom*. London: Hay House, 2016. Page 204.

## 読解問題演習 104

次の英文を読んで、下記の設問に答えなさい。

(兵庫医科大・医 2015)

Air travel has always been rich with conspiracy theories and urban legends. I've heard it all. Nothing, however, gets me sputtering more than the myths and exaggerations about cockpit automation — (1)the idea that modern aircraft are flown by computer, with pilots on hand merely as a backup in case of trouble. In some not-too-distant future, we're told, pilots will be engineered out of the picture altogether.

For example, in a 2012 *Wired* magazine story on robotics, a reporter had this to say: "A computerized brain known as the autopilot can fly a 787 jet unaided, but irrationally we place human pilots in the cockpit to babysit the autopilot, just in case."

That's about the most reckless and grotesque characterization of an airline pilot's job I've ever heard. To say that a 787, or any other airliner, can fly "unaided" and that pilots are on hand to "babysit the autopilot" isn't just hyperbole or a poetic stretch of the facts. It isn't just a little bit false. It's totally false. (2)And that a highly respected technology magazine wouldn't know better and would allow such a statement to be published shows you just how pervasive this mythology is. Such assertions appear in the media all the time, to the point where they are taken for granted.

One thing you'll notice is that purveyors of this claptrap tend to be journalists or academics — professors, researchers, etc. — rather than pilots. (3)Many of these people, however intelligent they are and however valuable their work might be, are highly unfamiliar with the day-to-day realities of commercial flying. Pilots too are occasionally part of the problem. "This plane practically flies itself!" one of us might say. We're often our own worst enemies, enamored of gadgetry and, in our attempts to explain complicated procedures to the layperson, given to dumbing down. We wind up painting a caricature of what flying is really like — in the process undercutting the value of our profession.

Essentially, high-tech cockpit equipment assists pilots in the way that high-tech medical equipment assists physicians and surgeons. It has vastly improved their capabilities, but it by no means diminishes the experience and skill required to perform at that level and has not come remotely close to rendering them redundant. A plane is able to fly itself about as much as the modern operating room can perform an operation by itself. "Talk about medical progress, and people think about technology," wrote the surgeon and author Atul Gawande in a 2011 issue of *The New Yorker*. (4)But the capabilities of doctors matter every bit as much as the technology. This is

true of all professions. What ultimately makes the difference is how well people use technology." That about nails it.

出典: Patrick Smith, *Cockpit Confidential*. Naperville: Sourcebooks, 2013.

(1) 下線部(1)を和訳しなさい。

(2) 下線部内にある such a statement を具体的に示しながら、下線部(2)を和訳しなさい。

(3) 下線部内にある these people を具体的に示しながら、下線部(3)を和訳しなさい。

(4) 下線部(4)を和訳しなさい。



## 読解問題演習 105

次の英文を読んで、下記の設問に答えなさい。①～⑨は段落番号を表す。

(順天堂大・医 2021)

① Many of us are familiar with the act of procrastinating — putting off tasks until, or past, their deadline. Why do people procrastinate? Does it only bring them disadvantages, or does it also have some benefits? (途中略) Procrastination typically gets a bad name as a habit that impacts productivity and holds people back from fulfilling their potential. Some researchers define procrastination as "a form of (a)self-regulation failure characterized by the needless delay of things one intends to do despite the expectation of negative consequences."

② *Medical News Today* spoke to some people who seem to shun<sup>\*1</sup> procrastination, afraid that putting things off will affect their productivity and create more stress. One person told us: "I never procrastinate because if I do even for a little while, I will never do the job. It makes it hard to prioritize<sup>\*2</sup>, and it can be stressful, but I feel in control." However, she also noted that never procrastinating on anything can also mean that she sometimes ends up doing unnecessary work.

③  Is procrastination all (b)doom and gloom, or can it bring us certain benefits? And why do some people tend to procrastinate in the first place? (途中略) When referring to procrastination, some people may think of it as poor time management, an inability to organize and prioritize tasks, meaning that we do them at the last minute, or even past their deadline.

④  One study found that procrastination is positively related to psychological vulnerability<sup>\*3</sup>. Other research pointed out that people who tend to put tasks off until the last moment may have lower self-esteem than their peers. Moreover, Fuschia Sirois, Ph.D. — now based at the University of Sheffield in the United Kingdom — also found that people who procrastinate tend to have higher levels of stress and lower levels of self-compassion<sup>\*4</sup>. Sirois explains that "serial" procrastinators are stuck in a vicious cycle<sup>\*5</sup>, in which the thought of previous uncompleted tasks haunts<sup>\*6</sup> them, paralyzing<sup>\*7</sup> them, and stopping them from completing present tasks, as well. Sirois states "the lower levels of self-compassion among chronic<sup>\*8</sup> procrastinators indicate that treating oneself harshly, with self-blame, criticism, and a general lack of kindness and acceptance after failure to act on intended actions may contribute to the stress associated

with procrastinating and further compromise well-being, and potentially physical health."

⑤  A study published in 2017 supports this idea. It shows a correlation between certain types of procrastination and neuroticism, a personality trait that denotes a high susceptibility to feelings of anxiety, worry, or frustration. And last year (2018), research whose findings appeared in the journal *Psychological Science* indicated that the people who are most likely to keep on procrastinating seem to have larger amygdalae than non-procrastinators. The amygdala is a brain region that plays a crucial role in the regulation of emotions, particularly processing anxiety and fear. In their paper, the authors explain that "regarding action control, this could mean that individuals with a larger amygdala volume have learned from past mistakes and evaluate future actions and their possible consequences more extensively." "This, in turn," they add, "might lead to greater concern and hesitation, as observed in individuals with low decision-related action orientation scores." (途中略)

⑥  In a seminal<sup>\*9</sup> study from 1997, researchers Roy Baumeister and Dianne Tice suggest that procrastination is a kind of "self-defeating behavior because it apparently leads to stress, illness, and inferior performance." Baumeister and Tice found that procrastinators might enjoy lower levels of stress when they procrastinate compared with non-procrastinators. However, their stress might affect them with redoubled<sup>\*10</sup> force in the long run, as they face the consequences of not having completed their tasks on time. The researchers also quote previous studies suggesting that procrastination has links to poorer mental health, as well as lower performance on tasks.

⑦ However, other researchers believe that procrastination is not entirely (c)devoid of benefits. Angela Hsin Chun Chu and Jin Nam Choi argue that there is more than one type of procrastination and that different kinds of procrastination may have various outcomes. In a study whose findings appeared in *The Journal of Social Psychology*, Chu and Choi cite previous research that argued that "not all delays lead to negative outcomes." They proposed that "delays resulting from time that was spent planning and gathering (d)vital preparatory information can be beneficial."

⑧ Thus, they distinguish between two types of procrastinators:

- Passive procrastinators do not intend to delay solving a task, but still do so because they are unable "to make decisions quickly and act on them quickly."
- Active procrastinators purposefully delay task-solving, as they prefer to work under pressure, as it allows them to "feel challenged and motivated."

⑨ Chu and Choi argue that the psychological profile of "active procrastinators" is closer to that of non-procrastinators, and that, in their case, procrastination may bring some unexpected benefits. The study authors write that "even though active procrastinators may plan their activities in an organized fashion, they do not restrict themselves to following a preplanned schedule or time structure." Such procrastinators allow themselves the flexibility of dealing with changes and new demands as they come, so they can spontaneously solve several competing tasks. The researchers note that: "If something unexpected comes up, active procrastinators will switch gears and engage in new tasks that they perceive as more urgent. In other words, active procrastinators may have more flexibly structured time and are more sensitive to changing demands in their environment."

- [注] \*1 shun: ～を避ける                      \*2 prioritize: ～を優先させる  
\*3 vulnerability: 傷つきやすさ           \*4 self-compassion: 自分への思いやり  
\*5 vicious cycle: 悪循環                   \*6 haunt: ～を苦しめる  
\*7 paralyze: ～を(一時的に)機能しない状態にする  
\*8 chronic: 慢性的な                        \*9 seminal: 影響力のある  
\*10 redoubled: 増加した

出典 : Cohut, M. (2019). *Medical News Today*, May 3, 2019. Retrieved from <https://www.medicalnewstoday.com> 分かりやすさのために、段落と語句などを変更した箇所がある。

問1 英文の内容に合うように、(1)~(4)の各文の空所を補うものとして最も適したものを、それぞれ選択肢 1~4の中から選びなさい。

- (1) The word (a)self-regulation in paragraph ① is closest in meaning to \_\_\_\_\_.  
1. self-employed    2. self-expression    3. self-confidence    4. self-control
- (2) The phrase (b)doom and gloom in paragraph ③ is closest in meaning to \_\_\_\_\_.  
1. deadly              2. negative              3. different              4. unrealistic
- (3) The phrase (c)devoid of in paragraph ⑦ is closest in meaning to \_\_\_\_\_.  
1, aware of              2. hopeful of              3. lacking in              4. increasing in

- (4) The word (d)vital in paragraph ⑦ is closest in meaning to \_\_\_\_ .  
 1. essential                    2. detailed                    3. correct                    4. general

**問2** 英文の内容に合うように、(1)～(5)の質問に対する答えとして最も適したものを、それぞれ選択肢1～4の中から選びなさい。

- (1) According to the person interviewed by *Medical News Today*, what is a consequence of never procrastinating?
1. Creative thinking might be needed.
  2. More time for scheduling might be necessary.
  3. Excessive work might be done.
  4. Their productivity might suffer.
- (2) What does the study conducted by Sirois imply?
1. Some procrastinators cannot accept criticism from other people.
  2. Some procrastinators have negative and positive impacts on their peers.
  3. Procrastination is caused by general lack of knowledge.
  4. Procrastination prevents them from being kind to themselves.
- (3) What is the significance of the study published in 2018?
1. It was revealed that procrastinators have some damage in their brain.
  2. A correlation was observed between procrastination and a physical characteristic.
  3. The individual differences among procrastinators were found.
  4. The future actions procrastinators would possibly take were analyzed.
- (4) What characteristics do active procrastinators have?
1. They are good at creating new demands.
  2. They are actively involved with other people.
  3. They are more likely to pursue their curiosity.
  4. They can adapt themselves to schedule changes.
- (5) What is the best title for this passage?
1. Can people reduce stress by procrastinating?
  2. Is procrastination helpful or harmful to our health?
  3. How does procrastination affect our brain?
  4. How can we stop people from procrastinating?

問3 次の文は文中の  ～  で示したいずれかの位置に入る。最も適した場所を選択肢 1～4 の中から選びなさい。

Increasingly, research has shown that procrastination is, in fact, a complex reaction to various perceived stressors.

1.

2.

3.

4.

## 読解問題演習 106

英文の意味が通るように、空所( ア )～( コ )に入る最も適当なものを(1)～(5)から一つ選びなさい。

(兵庫医科大・医 2017)

Vaccination is a precursor to modern medicine, not the product of it. Its roots are in folk medicine, and its first practitioners were farmers. Milkmaids in eighteenth-century England had faces unblemished by smallpox. Nobody ( ア ) why, but anyone could see it was true. Nearly ( イ ) in England at that time got smallpox and many of those who survived bore the scars of the disease on their faces. Folk knowledge held that if a milkmaid milked a cow blistered with cowpox and developed some blisters on her hands, she would not contract smallpox even ( ウ ) nursing victims of an epidemic.

By the end of the century, just as the waterwheels of the industrial revolution were beginning to turn the spindles in cotton mills, physicians were noting the ( エ ) of cowpox on milkmaids and anyone who milked cows. During a smallpox epidemic in 1774, a farmer who had himself already been infected ( オ ) cowpox used a darning needle to drive pus from a cow into the arms of his wife and two small boys. The farmer's neighbors were horrified. His wife's arm became red and swollen and she fell ill before recovering fully, but the boys had mild reactions. They were exposed to smallpox many times over the course of their long lives, occasionally for the purpose of demonstrating their immunity, without ( カ ) contracting the disease.

Twenty years later, the country doctor Edward Jenner extracted pus ( キ ) a blister on the hand of a milkmaid and scraped it into the arm of an eight-year-old boy. The boy got a fever but did not become ill. Jenner then exposed the boy to smallpox, which did not infect him. Emboldened, Jenner continued his experiment ( ク ) dozens of other people, including his own infant son. Before ( ケ ) , the procedure would be known by Jenner's term for cowpox, *variolae vaccinae*, from the Latin *vacca* for cow, the beast that would forever leave its ( コ ) on vaccination.

出典: Eula Bias, *On Immunity: An Inoculation*. Minneapolis: Graywolf Press, 2014. Pages 51-52.

- |     |             |                 |               |           |           |
|-----|-------------|-----------------|---------------|-----------|-----------|
| (ア) | (1) knew    | (2) know        | (3) knowingly | (4) known | (5) knows |
| (イ) | (1) always  | (2) any         | (3) everyone  | (4) none  | (5) some  |
| (ウ) | (1) now     | (2) out         | (3) so        | (4) up    | (5) while |
| (エ) | (1) effects | (2) influential | (3) memos     | (4) part  | (5) years |
| (オ) | (1) but     | (2) for         | (3) in        | (4) over  | (5) with  |

- |     |            |          |           |          |           |
|-----|------------|----------|-----------|----------|-----------|
| (カ) | (1) ever   | (2) most | (3) past  | (4) rare | (5) when  |
| (キ) | (1) before | (2) from | (3) on    | (4) such | (5) that  |
| (ク) | (1) during | (2) into | (3) many  | (4) on   | (5) until |
| (ケ) | (1) after  | (2) gone | (3) just  | (4) long | (5) soon  |
| (コ) | (1) line   | (2) mark | (3) space | (4) time | (5) word  |

## 読解問題演習 107

次の英文を読んで、文中の( ア )～( シ )に入れるのに最も適当な英語一語をそれぞれ書きなさい。

(産業医科大・医 2021)

Considering how widespread it is and how unpleasant it can be, we know surprisingly little about pain. Pain is not a thing — it's a perception. The same injury can cause vastly different levels of pain in different people, depending ( ア ) a number of factors, including how busy they are and what mood they are in. If you stub\*<sup>1</sup> your toe during a relaxed Sunday afternoon, you might feel a lot of pain. If you do the same thing as you are running to stop a small child ( イ ) walking in front of a bus, you might not notice the pain at all.

Fortunately, because pain is a ( ウ ) — a feeling — rather than something more concrete, music can help to minimize it. Music can reduce stress, relax you, improve your mood, and focus your attention — all factors that can help reduce the ( エ ) you feel. In addition, the fact that your brain is having to process the music is a distractor\*<sup>2</sup> — like seeing a child in danger — which interferes ( オ ) the "Bloody hell! That hurts!" signal. Music has been found to be very useful in dealing with temporary pain ( カ ) as dental treatment and headaches, particularly if the patient chooses the music and controls ( キ ) loud it is. Interestingly, the music works best if the patient has been told ( ク ) it will reduce the pain. If patients believe that they have some control over a method of pain reduction, the belief itself helps to reduce the pain.

One study of the effects of music on pain involved asking volunteers to keep their hands in very cold water for as ( ケ ) as they could stand. Participants who chose their own music could keep their hands in the cold water for ( コ ) than people who listened to white noise or random relaxation music. Once more it seems that choosing the music made the volunteers feel more in control of the situation and this helped them cope with the pain for a longer time. Women who performed this test after choosing their own music not ( サ ) coped longer with the pain but also felt that the pain was less intense; ( シ ) coped longer but felt the same intensity.

【Adapted from *Why You Love Music: From Mozart to Metallica — The Emotional Power of Beautiful Sounds*, by John Powell, Little Brown, 2016, pp. 76-77】

[注] \*<sup>1</sup> stub: ぶつける      \*<sup>2</sup> distractor: 気を散らすもの



**読解問題演習 108**

次の英文を読んで設問に答えなさい。

(産業医科大・医 2021)

Are animals capable of having fun? That is to say, are they capable of doing things that have no particular purpose other than to bring them pleasure and happiness? I think that's an important question, because the answer helps us decide whether animals experience positive feelings only when they perform tasks that promote the survival of the species. If that were the case, then pleasure and happiness would be purely the result of instincts that ensure that certain behaviors are engaged in and rewarded. In contrast, just by remembering happy experiences, humans can feel the emotions that went with them and enjoy them over and over again. Free-time fun belongs here, such as a holiday by the sea or winter sports in the mountains. Might (1)this be the essential thing that makes us different from animals? But then an Internet video showing a tobogganing\*<sup>1</sup> crow sliding down the roof of a house comes to mind. The crow has found a lid\*<sup>2</sup> from a plastic container. It carries it up to the highest part of the roof, places it on the slope and then jumps onto it to slide down. No sooner does the bird reach the bottom than it goes back up for its next ride. The point? Apparently none. The fun factor? Probably the same as when we jump onto the wooden or plastic object of our choice and slide down a hill in the snow.

Why would crows use energy on (2)such an activity that has no meaning? After all, the tough competition in evolution demands that creatures eliminate all activities that do not have any benefit, and any animal that does not meet this demand will not survive. And yet it's been a long time since we humans have paid any attention to this apparently absolute rule. At least in wealthier countries, we have energy to spare and we can afford to use it to enjoy ourselves. Why should it be any different for an intelligent bird that has set aside sufficient food for the winter and can devote some of its energy to fun and games? Clearly, crows, too, can convert surplus resources into simple fun and create happy feelings whenever they want.

So what about dogs and cats? Anyone who lives with these animals can tell stories about how they love to play. Our dog Maxi liked to play tag\*<sup>3</sup> with me in our yard. Because she knew she could run much faster than I could, she always gave me a chance to catch her so that the game didn't get boring. She'd run big circles around me, every once in a while running quickly towards me. Then, just before I caught her, she'd step aside and I'd miss. You could tell just by looking at her how this game delighted her. I really enjoy looking back to that time, and yet



2. 下線部(2)の内容について、本文の内容に沿って 60 字程度の日本語で書きなさい。

									60

3. 下線部(3)を日本語に訳しなさい。

4. 本文の内容に関する次の文(1)～(5)を読み、正しいものには○、間違っているものには×を、それぞれ記入しなさい。

- (1) Crows might enjoy sliding down a roof in the same way that humans enjoy skiing.
- (2) Basically, activities with no survival benefit to animals are assumed to disappear during their evolution.
- (3) Crows do not have time for fun activities in winter because they must use all their energy to find food for survival.
- (4) The author's dog understood that she could move more quickly than him when they played tag.
- (5) Crows tease dogs as a means of practicing survival skills.

## 読解問題演習 109

次の英文を読んで設問に答えなさい。

(産業医科大・医 2021)

Growing old is a relatively recent phenomenon. Until the last century or two, the average life span was less than 30 years. (1)There is very little historical information about the aging process, and because so few people had the opportunity to achieve their full aging potential, we are just now learning what our potential life spans are. Prior to the agricultural revolution of 10,000 or so years ago, life was usually cut short by predation,<sup>\*1</sup> injury, or starvation. The emergence of agriculture led to the formation of villages and cities; with people settling in close proximity,<sup>\*2</sup> we saw the rise and spread of infectious diseases, which continued to inhibit<sup>\*3</sup> average life spans. It wasn't until the twentieth century that average life expectancy began to rise appreciably, thanks to the medical successes curing infectious diseases, the widespread availability of food, and fewer hazards of daily life in civilized society. In fact, in the twentieth century alone, we have added approximately 30 years to the average life span, a near doubling over the previous millennia.<sup>\*4</sup>

A century ago there were only a handful of centenarians<sup>\*5</sup> on earth. By 1950 their numbers were estimated to be a few thousand. Today there are thought to be 340,000 centenarians worldwide, and it is estimated that that number will increase to 6 million by 2050. The highest concentrations of centenarians are projected to be in the United States and Japan. In 2009 there were approximately 100,000 in the United States and nearly 40,000 in Japan, but by mid-century those numbers are expected to grow to at least 600,000 in the United States and a full million in Japan, making centenarians the fastest-growing segment<sup>\*6</sup> of society, more than 20 times the overall rate of total population growth.

These impressive statistics emphasize the possibility of 100 as a reasonable objective, a longevity<sup>\*7</sup> beacon<sup>\*8</sup> that is demonstrably achievable. And yet we find ourselves in an era when the upward progression of expected life span is seriously threatened by an epidemic<sup>\*9</sup> of lifestyle-based negative factors. Obesity<sup>\*10</sup> and diabetes<sup>\*11</sup> are the dangers of our times, a peculiar regression<sup>\*12</sup> in a century of generally improving public health and longevity. We are increasingly becoming a bifurcated<sup>\*13</sup> society, with one segment focused on health and nutrition, and the other shifting our public health statistics in the negative direction. Probably the greatest challenge in public health policy today is to provide the education and motivation for the unhealthy to turn their lives around and adopt healthier — and hence more productive — lifestyles.

(中略)

It is as natural as breathing to want to extend life to its maximum limit. And yet who wants to live with sickness, weakness, and the loss of independence? Who wants to spend their last years — or decades — bedridden and hooked up to machines? It should be obvious that longevity and health are flip sides of the same coin. Longevity without health is not a desirable outcome for anyone. In fact it's not even an option. It is the convergence<sup>\*14</sup> of the aging process and the quality of our health that determines our life span.

(2)An extensive study by a Danish research group, covering 30 developed countries, now projects that, of the babies born in these countries today, fully half should live to 100 or more. More importantly, these people are expected to encounter less disability<sup>\*15</sup> and fewer functional limitations as they age, a consequence of presumed healthier lifestyles. The half that will not reach 100 will likely continue the other notable trend of our times, the increasing rate of obesity and diabetes that is pulling longevity statistics in the other direction.

Who wouldn't want to live to 100 or more, to have the longest possible life span? Not everyone, apparently. According to a survey by the Pew Research Group, only 8 percent of Americans actually expressed a desire to live to 100. The reason is that most of us still associate that age with sickness and a very low quality of life. The image presented by a 100-year-old person is invariably one dominated by the things that a person can no longer do, of loss of independent living and degraded function. (3)What is desirable about living so long if you can't do the things that seemed to make life worth living in the first place?

We believe that this view of late life is demonstrably wrong. One's later years are not fated to catastrophic<sup>\*16</sup> decline and decrepitude,<sup>\*17</sup> and we can now assert with the support of solid science that a great deal of the aging process is within our personal control.

【Adapted from *The Roadmap to 100: The Breakthrough Science of Living a Long and Healthy Life*, by Walter M. Bortz II, MD and Randall Stickrod, Palgrave Macmillan, 2010, pp. 7-11】

- |                          |                            |
|--------------------------|----------------------------|
| [注] *1 predation: 略奪     | *2 proximity: 近いこと、近接      |
| *3 inhibit: 抑制する         | *4 millennium: 1000年間      |
| *5 centenarian: 100歳以上の人 | *6 segment: 区分、階層          |
| *7 longevity: 長生き、長寿     | *8 beacon: 指針となるもの         |
| *9 epidemic: 流行、蔓延       | *10 obesity: 肥満            |
| *11 diabetes: 糖尿病        | *12 regression: 後戻り        |
| *13 bifurcated: 二分化した    | *14 convergence: 一致、集合     |
| *15 disability: 身体障害     | *16 catastrophic: 壊滅的な、悲惨な |
| *17 decrepitude: 老衰      |                            |



## 読解問題演習 110

Read the following passage and answer the questions that follow.

(関西医科大・医 2018)

If you don't like spending time crunching your abs\*<sup>1</sup> then we might have some good news. Researchers are not only arguing over whether sit-ups do you any good but whether they might even be bad for you.

Do they give you a taut six-pack\*<sup>2</sup> across your abdomen or does a flat stomach depend more on diet and general exercise ( ① ) a specific routine? A review of all the research conducted on sit-ups reports evidence ( ② ) they do improve flexibility and muscle strength and that in dogs flexing the spine has been shown to help the delivery of nutrients to the discs which could prevent stiffness.

So far, so good. But ( ③ ) get the desired six-pack does take an awful lot of work. In a small randomised controlled trial in Illinois in 2011 one group did daily abdominal exercises while the lucky control group did none. After six weeks detailed measurements were taken and it was found that the sit-ups made no difference to waist size or the amount of fat around their stomachs.

Many sportspeople do sit-ups as part of a raft of exercises which aim to improve their core stability, but research from Thomas Nesser from Indiana State University suggests that improving your core stability doesn't necessarily result in better athletic performance.

Whether or not they provide you with precisely the physique or fitness you desire, could sit-ups bring unintended consequences such as back pain? Stuart McGill, professor of spine biomechanics at the University of Waterloo in Canada has been studying sit-ups for years and is convinced that the traditional crunch does indeed cause us harm.

He conducted dozens of studies in his spine biomechanics lab using the cadavers of pigs, repeatedly flexing their spines in a similar way as a person might when doing a sit-up, but for many, many hours at a time. When he examined the discs in the spine afterwards, he found that they had been squeezed to the point where they bulged. ( ④ ) the same thing happened in a human this would press on the nerves, causing back pain, and possibly even a herniated disc.

Pigs were chosen for this experiment because their spines are more similar to human spines than those of many other animals, but of course critics of these studies point out, that there are still many differences between people and pigs. Also these studies involved thousands of continuous cycles of bending. Even when training hard, people take breaks between sets of crunches.

Perhaps these results tell us what might happen at the extremes in the unlikely event that you were to do sit-ups for hour upon hour, but in real life it's clearly not the case that most people damage their discs most of the time when doing sets of 15 sit-ups. However, injuries can happen. Research published in 2005 on soldiers stationed at the US military's Fort Bragg attributed 56% of all the injuries sustained during the two-yearly Army Physical Fitness Test, ( ⑤ ) sit-ups.

Some people seem to be more prone to back problems caused by sit-ups than others. We might be fine doing 30 sit-ups a day for decades, but we might ( ⑥ ) and it's hard to know which group we fall into. It could come down to our genes. According to one paper, it's not ⑦ wear-and-tear that causes most of the difficulties, but genetic factors, which account for three-quarters of the differences between the people who do get back problems and those who don't.

The Twin Spine study has been following pairs of twins in Finland, Canada and US since 1991. The researchers have found that genetics play a huge part in people's susceptibility to the degeneration of the discs in their backs. Even when one twin had a job requiring heavy lifting, while the other had a sedentary job, the frequency of back problems was about the same.

So sit-ups might lead to back pain, but only in some people. It's a good excuse not to do them. But if you want to crunch those abs, is there a way of limiting the risk? Professor Stuart McGill recommends sliding your hands under your lower back to stop it flattening against the floor. This minimises the stress on your back. Bend one knee up and keep the other ( ⑧: extend ). Then raise the head and shoulders off the ground by a very small amount. He says to imagine your head is resting on bathroom scales and you are just lifting your head enough for the scale to show zero. This exercise is described in much more detail in his book *Back Mechanic*.

In his review of the sit-up research Bret Contreras from Auckland University of Technology in New Zealand recommends limiting spinal exercises to 60 repetitions per session, beginning with only 15 and building up gradually. Finally, when we've been lying down overnight or even sitting down for a long time we gain a small amount of height, which makes sit-ups harder and increases the risk of injury. So don't stand up from hours of sitting at your desk and immediately get down on the floor to do sit-ups and don't bound out of bed and do them first thing in the morning.

(BBC News, April 18, 2016. "The surprising downside of sit-ups" By Claudia Hammond)

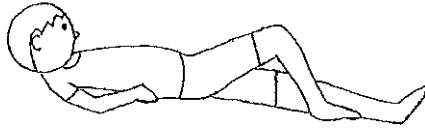


Notes: \*1 abs: 腹筋                      \*2 six-pack: 割れた腹筋

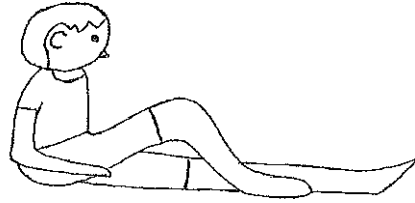
1. *In accordance with the passage, put the letter "O" if each of the following sentences is true, and "X" if it is not on your answer sheet.*
  - (1) A new study revealed that there are no advantages to sit-ups.
  - (2) Even if you do sit-ups regularly, you can't get a slender waist. However, you can reduce your belly fat with sit-ups.
  - (3) This article mentions a report that says there is always a correlation between the stability of your body trunk and your athletic ability.
  - (4) Human backbones resemble a pig's ones, but they're not exactly the same.
  - (5) Even well-trained personnel may get injured with sit-ups.
  - (6) One report states that 75% of the time, heredity factors determine whether sit-ups cause you back problems or not.
  - (7) The best time for you to do sit-ups is right after waking up.
  
2. *Fill in the blanks marked ①, ②, ④ and ⑥ with the most suitable English word to complete each sentence. As for the initial letter, use of uppercase or lowercase does not matter.*
  
  
  
  
  
  
  
  
  
  
3. *Fill in the blanks marked ③ and ⑤ with the same English word.*
  
  
  
  
  
  
  
  
  
  
4. *Translate the underlined word marked ⑦ into Japanese.*
  
  
  
  
  
  
  
  
  
  
5. *Change the form of the word in the parenthesis marked ( ⑧ ) to the most appropriate one.*

6. Which of the following illustrations is the correct way of sit-ups that Professor Stuart McGill recommends?

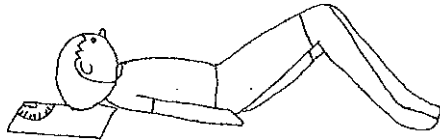
(ア)



(イ)



(ウ)



(エ)

