

問 1、次の英文を読んで、下の設問に答えなさい。

When it comes to aging, we tend to assume that cognition gets worse as we get older. Our thoughts may slow down or become confused, or we may start to forget things, like the name of our high school English teacher or what we meant to buy at the grocery store. But that's not the case for everyone.

For a little more than a decade, scientists have been studying a subset of people they call "super-agers." These individuals are age 80 and older, but they have the memory ability of a person 20 to 30 years younger.

Most research on aging and memory focuses on the other side of the relationship—people who develop dementia in their later years. But, "if we're constantly talking about what's going wrong in aging, it's not capturing the full spectrum of what's happening in the older adult population," said Emily Rogalski, a professor of neurology at the University of Chicago, who published one of the first studies on super-agers in 2012.

A paper published in the Journal of Neuroscience helps shed light on what's so special about the brains of super-agers. The most important finding, in combination with a companion study that came out last year on the same group of individuals, is that their brains have less shrinkage than their peers' do.

The research was conducted on 119 people in their eighties from Spain: 64 super-agers and 55 adults with normal memory abilities for their age. The participants completed multiple tests assessing their memory, motor and verbal skills; underwent brain scans and blood tests; and answered questions about their lifestyle and behaviors.

The scientists found that the super-agers had more volume in areas of the brain important for memory. They also had better preserved connectivity between regions in the front of the brain that are involved in cognition. Both the super-agers and the normal agers showed minimal signs of Alzheimer's disease in their brains.

"By having two groups that have low levels of Alzheimer's markers, but striking cognitive differences and striking differences in their brains, we're really seeing some evidence of a resistance to age-related decline," said Dr. Bryan Strange, a professor of clinical neuroscience at the Polytechnic University of Madrid, who led the studies.

These findings are backed up by Rogalski's research, initially conducted when she was at Northwestern University, which showed that super-agers' brains looked more like 50- or 60-year-

olds' brains than their 80-year-old peers'. When followed over several years, the super-agers' brains shrank at a slower rate than average.

No precise numbers exist on how many super-agers there are among us, but Rogalski said they're "relatively rare," noting that "far less than 10%" of the people she sees end up meeting the criteria.

But when you meet a super-ager, you know it, Strange said. "They are really quite energetic people, you can see. Motivated, responsive, older individuals."

Experts don't know how someone becomes a super-ager, though there were a few differences in health and lifestyle behaviors between the two groups in the Spanish study. Most notably, the super-agers had slightly better physical health, in terms of blood pressure, for example, and they performed better on a test of mobility. The super-agers didn't report doing more exercise at their current age than the typical older adults, but they were more active in middle age. They also reported better mental health.

But overall, Strange said, there were a lot of similarities between the super-agers and the regular agers. "There are a lot of things that are not particularly striking about them," he said. And, he added, "we see ①some surprising omissions: things that you would expect to be associated with super-agers weren't really there." For example, there were no differences between the groups in terms of their diets, the amount of sleep they got, their professional backgrounds or their alcohol and tobacco use.

The behaviors of some of the Chicago super-agers were similarly a surprise. Some exercised regularly, but some never had; some stuck to a Mediterranean diet, others ate a lot of ready-made dinners; and a few of them still smoked cigarettes. However, one consistency among the group was that they tended to have strong social relationships, Rogalski said.

"In an ideal world, you'd find out that, like, all the super-agers, you know, ate six tomatoes every day and that was the key," said Tessa Harrison, an assistant project scientist at the University of California, Berkeley, who collaborated with Rogalski on the first Chicago super-ager study.

Instead, Harrison continued, super-agers probably have "some sort of lucky physical condition or resistance mechanism in the brain that's on the molecular level that we don't understand yet."

While there isn't a recipe for becoming a super-ager, scientists do know that, in general, eating healthily, staying physically active, getting enough sleep and maintaining social connections are important for healthy brain aging.

[Dana G. Smith, A peek inside the brains of 'super-agers.' The Japan Times, April30, 2024 より抜粋 一部改変]

1. Circle T if the statement agrees with the information in the passage, and circle F if the statement contradicts the information in the passage.
(A) Super-agers' brains exhibit less shrinkage compared to those of other individuals in the same age group.
(B) Super-agers have lower levels of Alzheimer's markers than regular agers.
(C) A consistent trait among super-agers is that they have strong social relationships.
(D) Regular exercise is essential to becoming a super-ager.
(E) Eating six tomatoes every day is the key to becoming a super-ager.
2. 下線部①が示す内容について、具体例をあげて日本語で説明しなさい。
3. Harison 氏のコメントから今後どのような研究が行われると予測されるか、日本語で説明しなさい。

問2、次の英文を読んで、下の設問に答えなさい。

When we promise to save our money, we are in a cool state. When we promise to exercise and watch our diet, again we're cool. But then the flow of hot emotion comes rushing in: just when we plan to exercise regularly, we find a reason to sit all day in front of the television. And as for the diet? I'll take that slice of chocolate cake and begin the diet more seriously tomorrow. Giving up on our long-term goals for immediate satisfaction is procrastination.

As a university professor, I'm all too familiar with procrastination. At the beginning of every semester my students make heroic promises to themselves—vowing to read their assignments on time, submit their papers on time. And every semester I've watched them tempted out on a date, and off on a ski trip while their workload falls farther and farther behind. In the end, they wind up impressing me, not with their punctuality, but with their creativity—inventing stories, excuses, and family tragedies to explain being late (Why do family tragedies generally occur during the last two weeks of the semester?).

My colleague and I decided to research this problem in my classes. As my students settled into their chairs that first morning, full of anticipation, they listened to me review the syllabus for the course. There would be three main papers to submit over the 12-week semester, I explained. Together, these papers would constitute much of their final grade.

"And what are the deadlines?" asked one of them, waving his hand from the back. I smiled. "You can hand in the papers at any time before the end of the semester," I replied. "It's entirely up to you." The students looked confused.

"Here's the deal," I explained. "By the end of the week, you must set a deadline date for each paper. Once you set your deadlines, they can't be changed." Late papers, I added, would be penalized one point off the grade for each day late. The students could always turn in their papers before their deadlines without penalty, of course, but there would be no particular advantage in terms of grades.

①in other words, the ball was in their court. Would they have the self-control to play the game well?

"But Professor," asked a student called Gaurav, "given these instructions and incentives, wouldn't it make sense for us to select the last date possible?"

"You can do that," I replied. "If you find that it makes sense, by all means do it." Under these conditions, what would you have done?

What deadlines did the students pick for themselves? A perfectly rational student would follow Gaurav's advice and set all the deadlines for the last day of class—after all, it was always possible to submit papers earlier without a penalty, so why take a chance and select an earlier deadline than needed? Delaying the deadlines to the end was clearly the best decision if students were perfectly rational. But what if the students are not rational? What if they give in to temptation and are likely to procrastinate? What if they realize their weakness? If the students are not rational, and they know it, they could use the deadlines to force themselves to behave better. They could set early deadlines and by doing so force themselves to start working on the projects earlier in the semester.

What did my students do? They used the scheduling tool I provided and spaced the timing of their papers across the whole semester. This suggests that the students realize their problems with procrastination and that if given the opportunity they try to control themselves—but was the tool helpful in improving their grades? To find out, we conducted other variations of the same experiments in other classes and compared the quality of papers. I went to my other two classes with completely different deals. In the second class, I told the students that they would have no deadlines at all during the semester. They merely needed to submit their papers by the end of the last class. I suppose they should have been happy. I had given them complete flexibility and freedom of choice. Not only that, but they also had the lowest risk of being penalized for missing an intermediate deadline.

The third class received what might be called the dictator's treatment: I decided three deadlines for the three papers, set at the fourth, eighth, and twelfth weeks. These were my orders, and they left no room for choice or flexibility.

Of these three classes, which do you think achieved the best final grades? Was it Gaurav and his classmates, who had some flexibility? Or the second class, which had a single deadline at the end, and thus complete flexibility? Or the third class, which had its deadlines decided from above, and therefore had no flexibility?

We found that the students in the class with the three firm deadlines got the best grades; the class in which I set no deadlines at all had the worst grades; and the class in which Gaurav and his classmates were allowed to choose their own three deadlines (but with penalties for failing to meet them) finished in the middle.

When I looked at the deadlines set by the students in Gaurav's class, the vast majority of the students in this class spaced their deadlines substantially (and got grades that were as good as those earned by students in the dictator's class), some did not space their deadlines much, and a few did

not space their deadlines at all. These students who did not space their deadlines sufficiently pulled down the average grades of this class. Without properly spaced deadlines the final work was generally rushed and poorly written.

What do these results suggest? First, students do procrastinate (big news); and second, tightly restricting their freedom (equally spaced deadlines, imposed from above) is the best cure for procrastination. But the biggest discovery is that simply offering the students a tool by which they could commit to deadlines in advance helped them achieve better grades.

[Dan Ariely, *Predictably Irrational: The Hidden Forces That Shape Our Decisions*, Harper Collins, 2009 より抜粋, 一部改変]

1. What is the meaning of the word "procrastination" based on the passage? Circle the best answer.

- (A) Advance planning
- (B) Delaying tasks
- (C) Future anticipation
- (D) Immediate action

2. What is the main point of the passage? Circle the best answer.

- (A) Even with help, students have difficulties managing their time on projects.
- (B) It is better for teachers to control when deadlines are set.
- (C) Students have different levels of self-control.
- (D) With the right support, students can learn to control themselves.

3. If a student in Gaurav's class hands in all the papers one week late, how many points will they lose in total? Write the answer as a number. ___point(s)

4. 下線部①の内容について、日本語で説明しなさい。

5. Gaurav のクラスの成績順位はどうだったか、またその原因は何か、日本語で説明しなさい。

問3、次の文章を読んで、下線部①②③を英語にしてください。

①二十世紀の末にいたって、とうとう建築家は気が狂ってしまったのではないか。 そう思われても仕方がないほどに、二十世紀末の建築状況は混乱をきわめた。十八世紀末、十九世紀末にも確かに、似たようなデザインの混乱状況が、建築の世界をおそったが、それらの時代とは比較にならないほどの混乱が、建築の世界をおそった。

モダニズム、ポストモダニズム、ディコンストラクティビズム、ハイパーモダンなどと呼ばれる諸建築スタイルが驚くべきショートスパンで、あらわれては消えていくその速度は、「様式の交替」という建築史上の概念の枠をすでに逸脱してしまっているといってもいい。しかもそれぞれの様式は連続的にか段階的にかいった形容詞で記述できるような変化、交替の形をとらない。

②思ってもみなかったような姿、形をともなって、全く唐突に新しいスタイルが出現するのである。 いっそのこと「狂乱の世紀末」という言葉ひとつでくくって、それぞれの様式の特徴やディテール、その様式の下部にある思想や背景などは無視してしまった方がいい。

③そう考える人がでてきても、不思議ではないほどに、この混乱を整理することはむずかしい。 また事実、建築の世界に身を置いている人の中においても、そのような思考停止の波が拡がりつつある。しかし、いつの時代においても、混乱はいたずらに存在するわけではない。混乱の背後には必ずやひとつの明確な問題がひそんでおり、その問題に到達しえない人々が、狂乱とか病という名前でもくることで混乱をやりすごそうとするだけの話である。

[隈研吾『新・建築入門—思想と歴史』(ちくま親書, 1994年)より抜粋, 一部改変]

問4、次の英文を読んで、指示にしたがって英語で答えなさい。

What would you like to study at Okayama University? Why will you be a good student in that field of study? Give reasons why your choice of major is suitable for you. For example, write about your motivations and interests. How do your skills and abilities relate to that field of study? Write your answers in about 10 lines in English.