

平成 27 年度入学者選抜個別(第 2 次)学力検査問題

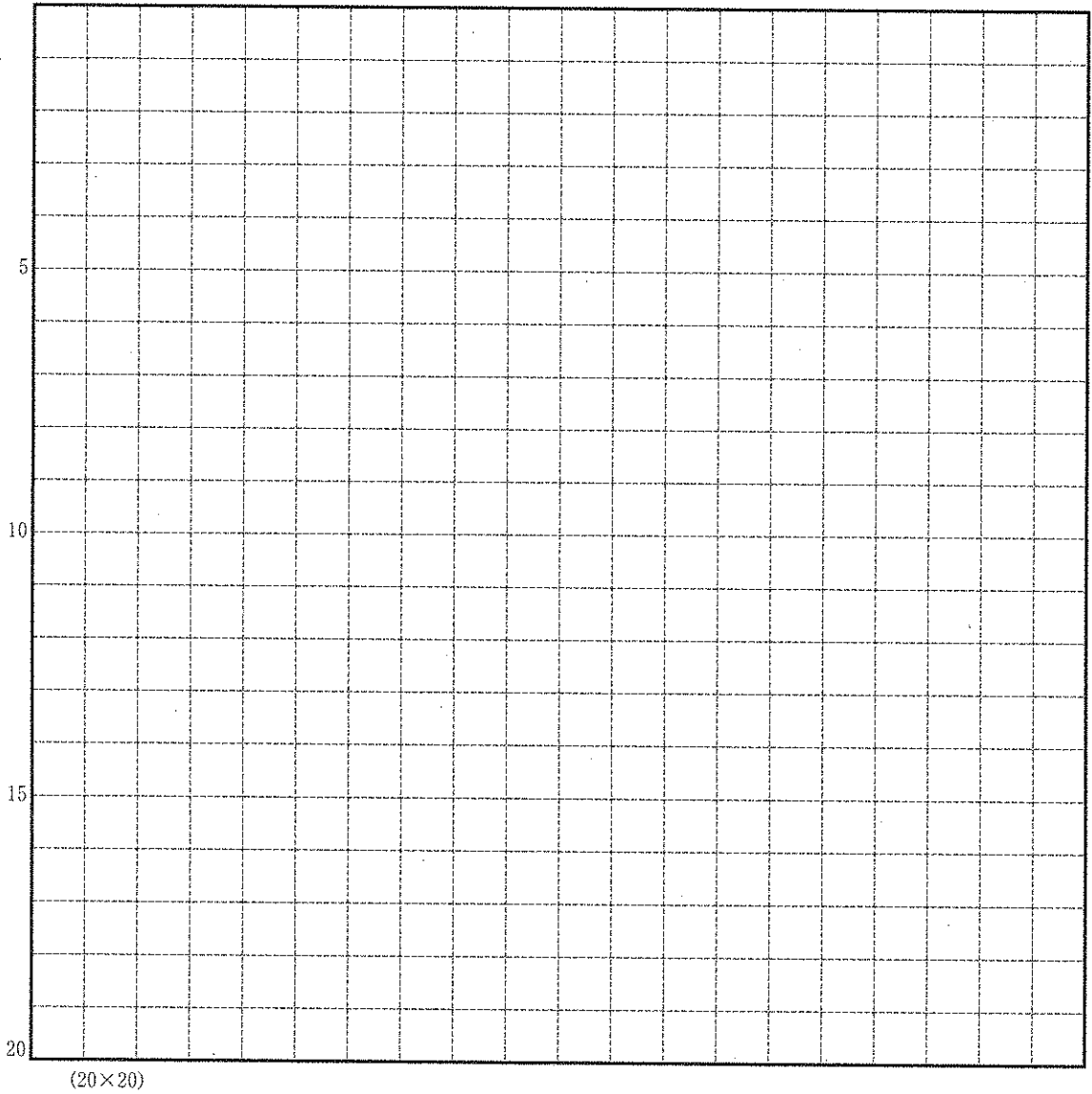
外 国 語

注 意 事 項

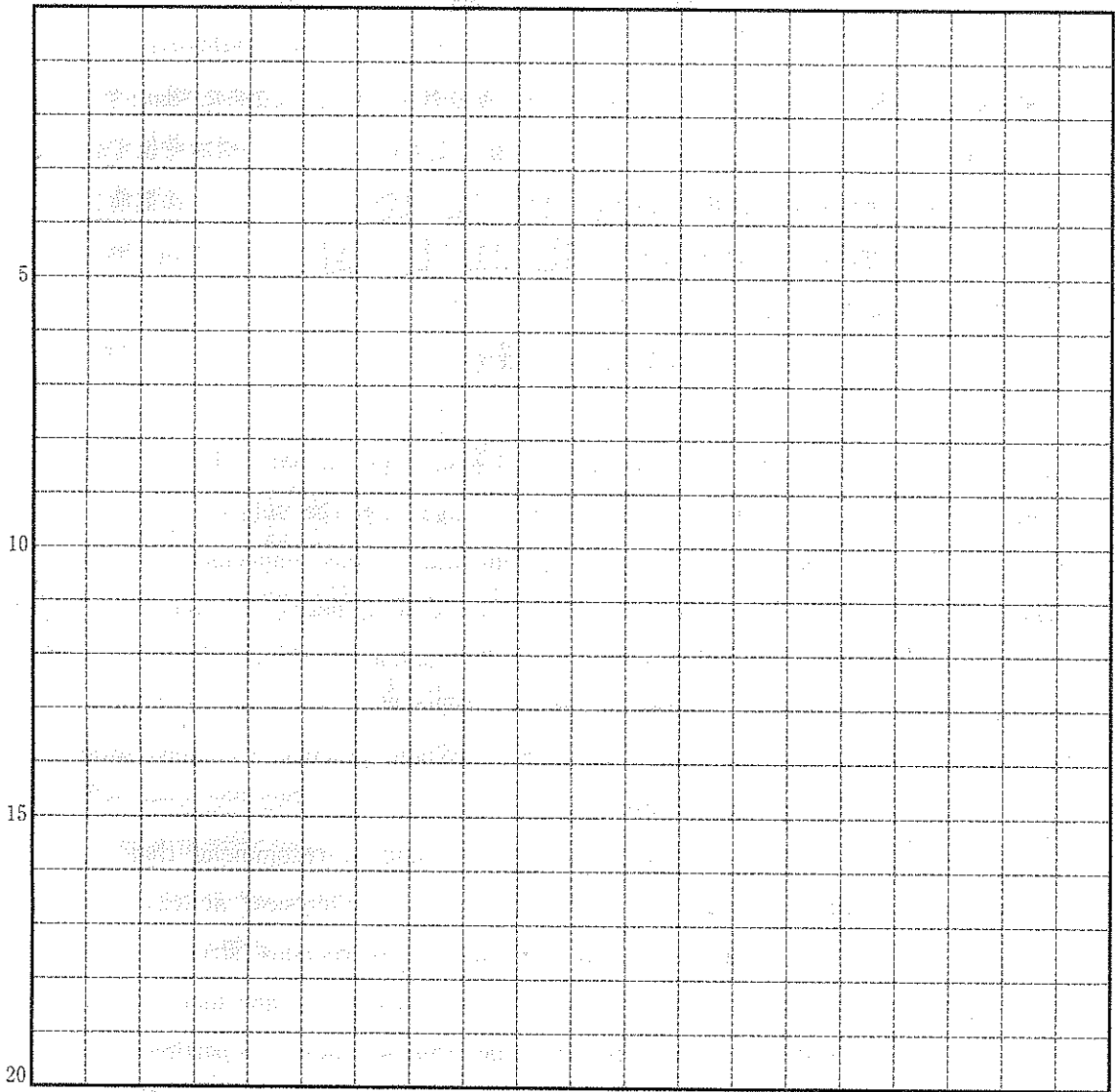
1. 監督者の指示があるまで、この冊子を開いてはいけません。
2. 問題冊子は、全部で 8 ページあり、第 1～3 ページは下書用紙です。下書用紙は切り離してはいけません。
3. 問題は、第 4 ページと第 5 ページの間に、はさみこんであります。
4. 解答用紙は、問題冊子と別に印刷されているので、誤らないように注意しなさい。
5. 解答は、必ず解答用紙の指定された欄内に横書きで記入しなさい。
6. 各解答用紙には、受験番号欄が 2 または 4 か所あります。それぞれ記入を忘れないこと。
7. 解答用紙は、記入の有無にかかわらず、机上に置き、持ち帰ってはいけません。問題冊子は持ち帰りなさい。
8. 落丁または印刷の不鮮明な箇所があれば申し出なさい。

学科によって解答すべき問題が異なります。
説明に従って解答しなさい。

下書用紙 (切り取ってはいけない)



下書用紙 (切り取ってはいけない)



(20×20)

外 国 語

次の英文は *The New York Times* 新聞(2012年6月2日)に掲載された“Salt, We Misjudged You” (Gary Taubes)の記事を一部改変したものです。この文章をよく読んで、医学科と歯学科の受験者は問題 3, 4, 5, 6 に答えなさい。保健衛生学科と口腔保健学科の受験者は問題 1, 2, 3, 5, 6 に答えなさい。解答は解答用紙の指定された欄に記入すること。

*印のついている語句の注は本文のあとに示されています。

The first time I questioned the conventional wisdom on the nature of a healthy diet, I was in my salad days, almost 40 years ago, and the subject was salt. Researchers were claiming that salt supplementation was unnecessary after *strenuous* exercise, and this advice was being passed on by health reporters. All I knew was that I had played high school football in suburban Maryland, sweating *profusely* through double sessions in the swamplike 90-degree days of August. Without salt pills, I couldn't make it through a two-hour practice; I couldn't walk across the parking lot afterward without cramping.

While sports nutritionists have since come around to recommend that we should indeed *replenish* salt when we sweat it out in physical activity, the message that we should avoid salt at all other times remains strong. Salt consumption is said to raise blood pressure, cause hypertension and increase the risk of premature death. This is why the United States Department of Agriculture's (U.S.D.A.) dietary guidelines still consider salt Public Enemy Number 1, coming before fats, sugars and alcohol. It's why the director of the Centers for Disease Control and Prevention (C.D.C.) has suggested that reducing salt consumption is as critical to long-term health as quitting cigarettes.

And yet, this eat-less-salt argument has been surprisingly controversial — and difficult to defend. Not because the food industry opposes it, but because the actual evidence to support it has always been so weak.

1)

When I spent the better part of a year researching the state of the salt science back in 1998—already a quarter century into the eat-less-salt recommendations—journal editors and public health administrators were still remarkably *candid* in their assessment of how *flimsy* the evidence was implicating salt as the cause of hypertension.

“You can say without any shadow of a doubt,” as I was told then by Drummond Rennie, an editor for *The Journal of the American Medical Association*, that the authorities pushing the eat-less-salt message had “made a commitment to salt education that goes way beyond the scientific facts.”

While back then, the evidence merely failed to demonstrate that salt was harmful, the evidence from studies published over the past two years actually suggests that restricting how much salt we eat can increase our likelihood of dying prematurely. Put simply, the possibility has been raised that if we were to eat as little salt as the U.S.D.A. and the C.D.C. recommend, we’d be harming rather than helping ourselves.

Why have we been told that salt is so deadly? Well, the advice has always sounded reasonable. ²⁾ It has what nutritionists like to call “biological plausibility.” Eat more salt and your body *retains* water to maintain a stable concentration of sodium in your blood. This is why eating salty food tends to make us thirsty: we drink more; we retain water. The result can be a temporary increase in blood pressure, which will *persist* until our kidneys eliminate both salt and water.

The scientific question is whether this temporary phenomenon translates to *chronic* problems: if we eat too much salt for years, does it raise our blood pressure, cause hypertension, then strokes*, and then kill us prematurely? It makes sense, but it’s only a hypothesis. The reason scientists do experiments is to find out if hypotheses are true.

In 1972, when the National Institutes of Health (N.I.H.) introduced the National High Blood Pressure Education Program to help prevent hypertension, no meaningful experiments had yet been done. The best evidence on the connection between salt and hypertension came from two pieces of research. One was the

observation that populations that ate little salt had virtually no hypertension. But those populations didn't eat a lot of things — sugar, for instance — and any one of those could have been the causal factor. The second was a *strain* of “salt-sensitive” rats that reliably developed hypertension on a high-salt diet. The catch was that “high salt” to these rats was 60 times more than what the average American consumes.

Still, the program was founded to help prevent hypertension, and prevention programs require preventive measures to recommend. Eating less salt seemed to be the only available option at the time, short of losing weight. Although researchers quietly acknowledged that the data were “inconclusive and contradictory” or “inconsistent and contradictory” — two quotes from the cardiologist* Jeremiah Stamler, a leading proponent of the eat-less-salt campaign, in 1967 and 1981 — publicly, the link between salt and blood pressure was upgraded from hypothesis to fact.

In the years since, the N.I.H. has spent enormous sums of money on studies to test the hypothesis, and those studies have singularly failed to make the evidence any more conclusive. Instead, the organizations *advocating* salt restriction today — the U.S.D.A., the Institute of Medicine, the C.D.C. and the N.I.H. — all essentially rely on the results from a 30-day trial of salt, the 2001 DASH-Sodium study. It suggested that eating significantly less salt would modestly lower blood pressure; it³⁾ said nothing about whether this would reduce hypertension, prevent heart disease or lengthen life.

While influential, that trial was just one of many. When researchers have looked at all the relevant trials and tried to make sense of them, they've continued to support Dr. Stamler's “inconsistent and contradictory” assessment. Last year, two such “meta-analyses*” were published by the Cochrane Collaboration, an international nonprofit organization founded to conduct unbiased reviews of medical evidence. The first of the two reviews concluded that cutting back “the amount of salt eaten reduces blood pressure, but there is insufficient evidence to confirm the predicted reductions in people dying prematurely or suffering cardiovascular

disease.” The second concluded that “we do not know if low salt diets improve or worsen health outcomes.”

The idea that eating less salt can worsen health outcomes may sound bizarre, but it also has biological plausibility and is celebrating its 40th anniversary this year, too. A 1972 paper in *The New England Journal of Medicine* reported that the less salt people ate, the higher their levels of a substance secreted by the kidneys, called renin, which set off a physiological cascade of events that seemed to end with an increased risk of heart disease. In this scenario: eat less salt, secrete more renin, get heart disease, die prematurely.

With nearly everyone focused on the supposed benefits of salt restriction,
little research was done to look at the potential dangers. But four years ago, Italian researchers began publishing the results from a series of clinical trials, all of which reported that, among patients with heart failure, reducing salt consumption increased the risk of death.

Those trials have been followed by numerous studies suggesting that reducing sodium to anything like what government policy refers to as a “safe upper limit” is likely to do more harm than good. These⁴⁾ covered some 100,000 people in more than 30 countries and showed that salt consumption is remarkably stable among populations over time. In the United States, for instance, it⁵⁾ has remained constant for the last 50 years, despite 40 years of the eat-less-salt message. The average salt intake in these populations — what could be called the normal salt intake — was one and a half teaspoons a day, almost 50 percent above what federal agencies consider a safe upper limit for healthy Americans under 50, and more than double what the policy advises for those who aren’t so young or healthy. This consistency, between populations and over time, suggests that how much salt we eat is determined by physiological demands, not diet choices.

One could still argue that all these people should reduce their salt intake to prevent hypertension, except for the fact that four of these studies — involving Type 1 diabetics, Type 2 diabetics, healthy Europeans and patients with chronic heart failure — reported that the people eating salt at the lower limit of normal

were more likely to have heart disease than those eating right in the middle of the normal range. Effectively what the 1972 paper would have predicted.

Proponents of the eat-less-salt campaign tend to deal with this contradictory evidence by implying that anyone raising it is a shill* for the food industry and doesn't care about saving lives. An N.I.H. administrator told me back in 1998 that to publicly question the science on salt was to play into the hands of the industry. "As long as there are things in the media that say the salt controversy continues," he said, "they win."

When several agencies, including the Department of Agriculture and the Food and Drug Administration, held a hearing last November to discuss how to go about getting Americans to eat less salt (as opposed to whether or not we should eat less salt), these proponents argued that the latest reports suggesting damage from lower-salt diets should simply be ignored. Lawrence Appel, an epidemiologist and a co-author of the DASH-Sodium trial, said "there is nothing really new." According to the cardiologist Graham MacGregor, who has been promoting low-salt diets since the 1980s, the studies were no more than "a minor irritation that causes us a bit of aggravation."

This attitude that studies that go against prevailing beliefs should be ignored on the basis that, well, they go against prevailing beliefs, has been the norm for the anti-salt campaign for decades. Maybe now the prevailing beliefs should be changed. The British scientist and educator Thomas Huxley, known as Darwin's bulldog for his advocacy of evolution, may have put it best back in 1860. "My business," he wrote, "is to teach my aspirations to conform themselves to fact, not to try and make facts harmonize with my aspirations."

注

stroke 脳卒中

cardiologist 心臓専門医

meta-analysis メタ解析

shill サクラ

問題

保健衛生学科と口腔保健学科のみ

1 The following words appear in bold italics in the text. On the answer sheet, circle the letter indicating the best definition for each word (based on how the word is used in the text).

strenuous

- a) endurance b) hard c) hot
d) physical e) regular

profusely

- a) abnormally b) gradually c) plentifully
d) slightly e) unexpectedly

replenish

- a) increase b) reduce c) remember
d) reproduce e) restore

candid

- a) certain b) disagreeable c) insincere
d) open e) positive

flimsy

- a) available b) clear c) considerable
d) old e) weak

retains

- a) controls b) eliminates c) keeps
d) reuses e) sweats

persist

- a) comprise b) continue c) hinder
d) invert e) rise

chronic

- a) continuing b) deadly c) elderly
d) serious e) unsolvable

strain

- a) mixture b) nest c) quality
d) steward e) type

advocating

- a) arguing for b) discussing c) in charge of
d) regulating e) researching

保健衛生学科と口腔保健学科のみ

2 What do the following words, which are underlined in the text, refer to? Answer using one to five English words that can replace the underlined word.

- 1) it
2) It
3) it
4) These
5) it

全学科

3 According to the text, decide whether the following statements are true (T) or false (F). For each statement circle the correct answer on the answer sheet.

1. Even though researchers almost forty years ago did not recommend the consumption of salt pills after strenuous exercise, the author's experience led him to question this advice.
2. The author implies that according to the United States Department of Agriculture's dietary guidelines, salt can be worse for your body than fats, sugars and alcohol.
3. According to the author, the director of the Centers for Disease Control and Prevention has suggested that salt consumption may be even more harmful in the long term than smoking.
4. According to the article, a less salty diet is helpful in reducing dependence on tobacco and nicotine.
5. Drummond Rennie believes proponents of a low-salt diet exaggerated their claims.
6. The author reports that most early studies of salt consumption indicated that extremely low amounts of salt were dangerous.
7. If we eat salty food, we tend to feel thirsty and drink more water, which may cause a temporary increase in blood pressure.
8. The author implies that when the National Institutes of Health began the National High Blood Pressure Education Program in 1972, the research on the connection between salt and hypertension was poor.

9. In one study done prior to 1972, scientists observed people who ate less than other people and consequently did not develop hypertension.
10. In another study done prior to 1972, a strain of rats which ate large amounts of salt consistently developed hypertension.
11. Cardiologist Jeremiah Stamler used data gathered over more than 15 years to support the eat-less-salt recommendation.
12. The author implies that the National High Blood Pressure Education Program recommendation to reduce salt intake was mainly due to a lack of better alternatives.
13. According to this article, one of the Cochrane Collaboration reviews of salt said that low-salt diets might help maintain a person's health, without improving or worsening it.
14. Based on the author's description, it is reasonable to assume that the Cochrane Collaboration is not connected to the food industry or other business interests.
15. Although the Cochrane Collaboration performed two large-scale experiments concerning salt intake, the results from these experiments were inconclusive overall.
16. A 1972 paper in *The New England Journal of Medicine* suggests that increased levels of renin brought about by reduced salt intake can lead to heart disease.
17. Recent clinical trials by Italian researchers covered approximately 100,000 people in more than 30 countries.
18. The author claims that salt intake in the United States today is roughly the same as it was before the National High Blood Pressure Education Program was started.
19. The author implies that one and a half teaspoons of salt a day is more than twice what the U.S. government considers to be a safe amount for elderly people.
20. The author suggests that the amount of salt we eat may be driven by the needs of our body rather than by conscious decisions.

21. The author suggests that eat-less-salt advocates are unwilling to take pro-salt arguments seriously.
22. It is reasonable to conclude that the N.I.H. administrator who spoke to the author in 1998 had an unfavorable view of the food industry.
23. The author describes a hearing held by several U.S. agencies concerning whether or not eat-less-salt campaigns should continue.
24. Cardiologist Graham MacGregor warned at the hearing that salty diets can cause irritation and aggravation.

医学科と歯学科のみ

4 Briefly (in 10 to 25 words) answer the following questions in your own words, using complete English sentences. Base your answers on the information presented in the article.

- 1) Compare and contrast the advice of sports nutritionists today and forty years ago concerning salt and physical activity.
- 2) Explain specifically why the theory that salt is deadly may have “biological plausibility.”
- 3) What did the two Cochrane Collaboration reviews conclude about reduced salt consumption?

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5 下線部(ア)と(イ)を日本語に訳しなさい。

全学科

6 健康のために食塩摂取量を少なくするべきであるという考え方にこの記事の著者が反対している理由を、次のキーワードを用いて日本語で 400 字以内にまとめなさい：根拠 (“evidence”)、高血圧症 (“hypertension”)。