外　国　語

次の英文はNPR(2017年3月6日)に掲載された“Unscrambling The Nutrition Science On Eggs” (Bret Stetka)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。

Historically, when humans have sought a reliable source of calories — particularly **one** [1)] that can be readily nabbed from an unsuspecting animal with minimal exertion and zero horticulture skills — we have often turned to eggs.

We've pilfered the ova of countless creatures since Neolithic times. But it is the nutritive and symbolic capacities of the humble bird egg, primarily that of the chicken, that we have most consistently championed: reliable nourishment, a hangover cure, an emblem of rebirth — when necessary, a supreme projectile.

As P.G. Wodehouse asked in his 1906 novel, *Love Among The Chickens*, “Have you ever seen a man, woman, or child who wasn't eating an egg or just going to eat an egg or just coming away from eating an egg? I tell you, the good old egg is the foundation of daily life.”

Yet in the late 1970s, our egg appreciation soured. Doctors realized that excess cholesterol in our blood predicts a higher risk of heart disease. Cholesterol is a fatty substance necessary for digestion, cellular function and the production of hormones. When too much of it shuttles through our blood supply, **it** [2)] can ***accumulate*** on artery walls and up our risk for heart attack and stroke. (ア) By extension, many physicians of the day assumed that eating high-cholesterol foods like butter, red meat and eggs was probably disastrous for our health and should be avoided. Fat phobia ensued.

We now know it's more complicated than this.

Cholesterol no doubt contributes to heart disease by ***literally*** blocking our

blood vessels. And eating cholesterol can raise levels of it in the blood, but, as a growing body of research has shown, not by that much. Consuming sugar, transfats or excessive saturated fat can be more harmful to cholesterol levels than dietary cholesterol itself. Most of the cholesterol in our bodies we make ourselves in the liver, and total body levels are heavily influenced by genetics, gender and age.

As more and more research suggests that some degree of cholesterol consumption is harmless, if not healthy, the egg's reputation is gradually returning. Yet some experts worry that the science is being misinterpreted and spun by the media, the egg industry and even opportunistic doctors. Diet science tends to be presented and perceived as black or white. Take butter: bad for us one day, not so bad the next. It's an eternal cycle of self-help revenue. Unfortunately, health and science are rarely this simple. And neither is the egg.

Our ***collective*** fear of cholesterol and other fats in part traces back to results from the famous Framingham Heart Study. Launched in 1948 and still going today, the study began by tracking the lifestyles of 5, 209 people from Framingham, Mass. The results, which began to appear in journals in the early 1960s, led to our current understanding of heart health and how **it** 3) is affected by factors like exercise, smoking and diet.

Dr. Walter Willett, chair of the Harvard T.H. Chan School of Public Health's Nutrition Department, was one of the first physicians to realize that while the Framingham findings showed that cholesterol in the blood is associated with a higher risk of heart disease, no studies at that point had shown that cholesterol consumption actually increased blood levels.

Willett and his colleagues have since studied thousands of patients for years and have found no evidence that moderate dietary cholesterol or egg consumption increases the risk for heart disease and stroke, except in people with a strong genetic risk for high cholesterol and possibly people with diabetes.

His findings echo those from a 2013 study published in *BMJ* reporting that

eating one egg per day is not associated with ***impaired*** heart health.

"There is now general consensus that dietary cholesterol, primarily consumed in eggs, and to a lesser extent in certain seafoods like shrimp, has a relatively small effect in raising blood cholesterol," explains Dr. Bruce Griffin, who studies the links between nutrition and cardiovascular disease at the University of Surrey in England. Griffin's own study from 2009 found that overweight people prescribed a low-calorie diet that included two eggs a day actually saw a drop in cholesterol levels.

The renaissance around cholesterol is not lost on guideline committees, many of which are softening their ***stance***.

In 2013 the American College of Cardiology and American Heart Association rattled the medical community by releasing new cholesterol guidelines that ***abandoned*** the long-standing goal of keeping our "bad cholesterol" — our LDLs — under 100. The guideline authors based their decision on the lack of randomized-controlled trials supporting a specific target. Too many LDLs tumbling through our bloodstream are no doubt bad, **they**[4] acknowledge, but dangerous levels in one person might be ***tolerable*** in someone else. Also, chasing a specific target through overtreatment could subject patients to drug side effects, which need to be considered.

The 2015 Dietary Guidelines for Americans — co-developed by the U.S. Department of Agriculture and U.S. Department of Health and Human Services — also broke with tradition. General clinical dogma had previously held that total cholesterol should be capped at 300 milligrams per day in healthy people, roughly the amount found in 1 1/2 average-sized chicken eggs. Yet the new guidelines don't include a specific numerical goal. As the authors wrote, "available evidence shows no appreciable relationship between consumption of dietary cholesterol and [blood] cholesterol. . . Cholesterol is not a nutrient of concern for overconsumption."

But some nutrition scientists worry that this softened official line on cholesterol sends the wrong message.

"The lack of dietary cholesterol recommendations in recently released... guidelines is controversial," says Dr. Wahida Karmally, director of nutrition at the Irving Institute for Clinical and Translational Research at Columbia University. "This should not be interpreted as an affirmation to ignore dietary cholesterol, since there is clear evidence that **it**[5] does increase LDL-cholesterol," she says.

And it does. But by some estimates, only by around 10 percent.

Karmally also points out the danger in generalizing study results to the entire population. She notes that a significant portion of population — up to 30 percent, some estimate — are thought to be "hyper-responders," meaning they experience abnormally high spikes in blood cholesterol as a result of consuming cholesterol. Most experts agree that hyper-responders need to be especially ***diligent*** about limiting cholesterol consumption.

Dr. J. David Spence, a professor of neurology and clinical pharmacology at Western University in London, Ontario, a known egg detractor, is ***livid*** at how the 2015 guidelines were interpreted.

"The egg industry and the media seized on the first paragraph of the media release of the new guideline, which said there is not strong data on which to base a specific numerical limit to a dietary cholesterol intake," he points out. "But if we read on, the guidelines recommend that cholesterol intake should be as low as possible and part of a generally healthy diet."

The report also cautions that foods high in cholesterol are often also high in saturated fat, which itself increases blood cholesterol and the risk of heart disease.

Spence likens Big Egg to Big Tobacco in its loose interpretation of scientific data in the interest of profit.

In December 2016, a meta-analysis published in the *Journal of the American College of Nutrition* reported that people who eat an average of one egg a day have a 12 percent lower risk for stroke compared with those who eat fewer eggs. The study also found no link, whether positive or negative, between egg consumption and coronary heart disease.

Yet note the fine print: The study was partially funded by something called the Egg Nutrition Center, a self-described "nutrition education division of the American Egg Board (AEB), a national checkoff program on all egg farms with more than 75, 000 hens."

"I am not trying to put egg farmers out of business," says Spence. "[But] the propaganda of the egg industry rests on a half-truth."

He is referring to the fact that many past studies funded by the egg industry that support egg consumption measured fasting cholesterol levels rather than levels after a meal. Most of us spend a good portion of our day in a post-meal state, when our cholesterol climbs to higher levels — and when it ***presumably*** does more damage to our arteries. What's more, by not measuring cholesterol after meals, researchers are unable to identify the hyper-responders, for whom consuming cholesterol poses added health risks.

Spence's true gripe lies not with the egg itself, but with the yolk. One jumbo egg yolk contains around 240 milligrams of cholesterol, nearly as much as an entree I was frightened to Google: the "2/3 lb. Hardee's Monster Thickburger." In an email, Spence recommended I try his omelet and frittata recipes while writing this article. Both are made with egg whites, which he cedes is a healthy source of protein.

Cholesterol aside, Willett points to other possible health benefits of eggs. They contain some unsaturated fats, associated with a lower risk of heart disease; also iron and a number of vitamins and minerals. (イ) And a new Finnish study — one not affiliated with the egg industry — even suggests that eating one egg a day could improve long-term cognitive function.

"Overall it is hard to say that eggs are good or bad," says Willett. "They're almost certainly no worse than sugary breakfast cereal or a bagel with cream cheese — probably better. In terms of health, they seem to be in the middle somewhere."

However, in the interest of a healthy breakfast, before cracking into an egg,

Willett says to consider fruit, nuts and whole grains, all thought to lower blood cholesterol and the risk of heart disease.

"A bowl of steel cut oats topped with nuts and berries will almost certainly reduce risk of heart disease compared to a breakfast centered on eggs," he says. "That's what I have most mornings, sometimes adding a bit of yogurt. But eggs are clearly not a poison pill."

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).***

accumulate

a) break down　b) build up　c) move over
d) slow down　e) speed up

literally

a) actively　b) actually　c) easily
d) practically　e) typically

collective

a) accurate　b) historical　c) innate
d) shared　e) strong

impaired

a) damaged　b) examined　c) increased
d) risky　e) unusual

stance

a) behavior　b) estimates　c) laws
d) position　e) research

abandoned

a) blocked　b) criticized　c) dropped
d) reversed　e) revised

tolerable

a) endurable　b) fatal　c) necessary
d) special　e) unacceptable

diligent

a) careful　b) helpful　c) studious
d) well-behaved　e) worried

livid

a) amused　b) candid　c) confused
d) pleased　e) unhappy

presumably

a) definitely　b) hardly　c) likely
d) quickly　e) unfortunately

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) one　　2) it　　3) it

4) they　　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) The article implies that until the latter half of the 1970s, views concerning eggs were generally positive.

2) The article implies that doctors in the late 1970s were wrong to believe that excess cholesterol in the blood increases the risk of heart disease.

3) The article implies that factors such as age and gender affect cholesterol levels in the body more than eating foods high in cholesterol.

4) The article implies that news concerning diet science is not reported by the media simply enough.

5) According to the article, butter has harmful effects on our body on the day of consumption, but those effects diminish on the next day.

6) The article implies that the Framingham Heart Study was designed to frighten people into limiting their intake of cholesterol and other fats.

7) The Framingham Heart Study has been following individuals for approximately 70 years.

8) Dr. Walter Willett was one of the first physicians to find that cholesterol consumption increases blood cholesterol levels.

9) The Framingham Heart Study revealed a relationship between dietary cholesterol consumption and heart disease.

10) The findings of Dr. Willett and his colleagues suggest that people with diabetes should limit dietary cholesterol and egg consumption.

11) Dr. Willett published a study in *BMJ* reporting that eating one egg per day is not related to impaired heart health.

12) Based on the statement by Dr. Bruce Griffin, it is reasonable to conclude that people who eat eggs and certain seafoods like shrimp are likely to have lower levels of blood cholesterol than people who do not.

13) Even though the overweight people in Dr. Griffin's 2009 study ate two eggs per day, their cholesterol levels still decreased in the end.

14) What was previously considered to be "bad cholesterol" is now recommended in cholesterol guidelines issued by the American College of Cardiology and American Heart Association.

15) It is reasonable to conclude that the authors of the 2015 Dietary Guidelines for Americans don't believe eating two eggs per day will lead to dangerous levels of blood cholesterol.

16) Dr. Wahida Karmally states correctly that dietary cholesterol increases the level of LDL-cholesterol.

17) When so-called "hyper-responders" consume dietary cholesterol, their blood cholesterol levels can suddenly increase by up to 30 percent.

18) According to Dr. J. David Spence, the 2015 Dietary Guidelines for Americans were explained poorly by the media.

19) Dr. Spence seems to believe that eggs can be as harmful to the human body as cigarettes.

20) A study published in the *Journal of the American College of Nutrition* in December 2016 found that people who eat less than one egg per day have a higher risk of stroke than those who eat an egg daily.

21) The article implies that the 2016 study published in the *Journal of the American College of Nutrition* is only half true.

22) Dr. Spence's omelet and frittata recipes do not include egg yolks, which are high in cholesterol.

23) Dr. Willett helped to conduct a Finnish study that suggests eating eggs can lead to cognitive benefits.

24) Dr. Willett recommends having fruit, nuts and whole grains for breakfast rather than eggs.

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) How did cholesterol guidelines change in 2013 and 2015?

2) When studying the effects of egg consumption, why might it be better to measure post-meal rather than pre-meal cholesterol levels?

3) What are the possible health benefits of eggs described in the last five paragraphs of the article?

全学科

5 下線部(ア)と(イ)を日本語に訳しなさい。

全学科

6 卵の健康への影響に関する考え方の変遷について，この記事の著者が述べていることを，以下のキーワードをすべて用いて日本語で400字以内にまとめなさい。

※英数字は2文字で1マスとしてさしつかえない。

血中コレステロール(blood cholesterol)

心疾患(heart disease)

メディア(media)