

第6問 (配点 24)

A You are working on a class project about safety in sports and found the following article. You are reading it and making a poster to present your findings to your classmates.

Making Ice Hockey Safer

Ice hockey is a team sport enjoyed by a wide variety of people around the world. The object of the sport is to move a hard rubber disk called a “puck” into the other team’s net with a hockey stick. Two teams with six players on each team engage in this fast-paced sport on a hard and slippery ice rink. Players may reach a speed of 30 kilometers per hour sending the puck into the air. At this pace, both the players and the puck can be a cause of serious danger.

The speed of the sport and the slippery surface of the ice rink make it easy for players to fall down or bump into each other resulting in a variety of injuries. In an attempt to protect players, equipment such as helmets, gloves, and pads for the shoulders, elbows, and legs, has been introduced over the years. Despite these efforts, ice hockey has a high rate of concussions.

A concussion is an injury to the brain that affects the way it functions; it is caused by either direct or indirect impact to the head, face, neck, or elsewhere and can sometimes cause temporary loss of consciousness. In less serious cases, for a short time, players may be unable to walk straight or see clearly, or they may experience ringing in the ears. Some believe they just have a slight headache and do not realize they have injured their brains.

In addition to not realizing the seriousness of the injury, players tend to worry about what their coach will think. In the past, coaches preferred tough players who played in spite of the pain. In other words, while it would seem

logical for an injured player to stop playing after getting hurt, many did not. Recently, however, it has been found that concussions can have serious effects that last a lifetime. People with a history of concussion may have trouble concentrating or sleeping. Moreover, they may suffer from psychological problems such as depression and mood changes. In some cases, players may develop smell and taste disorders.

The National Hockey League (NHL), consisting of teams in Canada and the United States, has been making stricter rules and guidelines to deal with concussions. For example, in 2001, the NHL introduced the wearing of visors—pieces of clear plastic attached to the helmet that protect the face. At first, it was optional and many players chose not to wear them. Since 2013, however, it has been required. In addition, in 2004, the NHL began to give more severe penalties, such as suspensions and fines, to players who hit another player in the head deliberately.

The NHL also introduced a concussion spotters system in 2015. In this system, NHL officials with access to live streaming and video replay watch for visible indications of concussion during each game. At first, two concussion spotters, who had no medical training, monitored the game in the arena. The following year, one to four concussion spotters with medical training were added. They monitored each game from the League's head office in New York. If a spotter thinks that a player has suffered a concussion, the player is removed from the game and is taken to a "quiet room" for an examination by a medical doctor. The player is not allowed to return to the game until the doctor gives permission.

The NHL has made much progress in making ice hockey a safer sport. As more is learned about the causes and effects of concussions, the NHL will surely take further measures to ensure player safety. Better safety might lead to an increase in the number of ice hockey players and fans.

Making Ice Hockey Safer

What is ice hockey?

- Players score by putting a “puck” in the other team’s net
- Six players on each team
- Sport played on ice at a high speed



Main Problem: A High Rate of Concussions

Definition of a concussion

An injury to the brain that affects the way it functions

Effects

Short-term

- Loss of consciousness
- Difficulty walking straight
- 39
- Ringing in the ears

Long-term

- Problems with concentration
- 40
- Psychological problems
- Smell and taste disorders

Solutions

National Hockey League (NHL)

- Requires helmets with visors
- Gives severe penalties to dangerous players
- Has introduced concussion spotters to 41

Summary

Ice hockey players have a high risk of suffering from concussions.

Therefore, the NHL has 42.

問 1 Choose the best option for 39 on your poster.

- ① Aggressive behavior
- ② Difficulty thinking
- ③ Personality changes
- ④ Unclear vision

問 2 Choose the best option for 40 on your poster.

- ① Loss of eyesight
- ② Memory problems
- ③ Sleep disorders
- ④ Unsteady walking

問 3 Choose the best option for 41 on your poster.

- ① allow players to return to the game
- ② examine players who have a concussion
- ③ fine players who cause concussions
- ④ identify players showing signs of a concussion

問 4 Choose the best option for 42 on your poster.

- ① been expecting the players to become tougher
- ② been implementing new rules and guidelines
- ③ given medical training to coaches
- ④ made wearing of visors optional

B You are studying nutrition in health class. You are going to read the following passage from a textbook to learn more about various sweeteners.

Cake, candy, soft drinks—most of us love sweet things. In fact, young people say “Sweet!” to mean something is “good” in English. When we think of sweetness, we imagine ordinary white sugar from sugar cane or sugar beet plants. Scientific discoveries, however, have changed the world of sweeteners. We can now extract sugars from many other plants. The most obvious example is corn. Corn is abundant, inexpensive, and easy to process. High fructose corn syrup (HFCS) is about 1.2 times sweeter than regular sugar, but quite high in calories. Taking science one step further, over the past 70 years scientists have developed a wide variety of artificial sweeteners.

A recent US National Health and Nutrition Examination Survey concluded that 14.6% of the average American’s energy intake is from “added sugar,” which refers to sugar that is not derived from whole foods. A banana, for example, is a whole food, while a cookie contains added sugar. More than half of added sugar calories are from sweetened drinks and desserts. Lots of added sugar can have negative effects on our bodies, including excessive weight gain and other health problems. For this reason, many choose low-calorie substitutes for drinks, snacks, and desserts.

Natural alternatives to white sugar include brown sugar, honey, and maple syrup, but they also tend to be high in calories. Consequently, alternative “low-calorie sweeteners” (LCSs), mostly artificial chemical combinations, have become popular. The most common LCSs today are aspartame, Ace-K, stevia, and sucralose. Not all LCSs are artificial—stevia comes from plant leaves.

Alternative sweeteners can be hard to use in cooking because some cannot be heated and most are far sweeter than white sugar. Aspartame and Ace-K are 200 times sweeter than sugar. Stevia is 300 times sweeter, and sucralose

has twice the sweetness of stevia. Some new sweeteners are even more intense. A Japanese company recently developed “Advantame,” which is 20,000 times sweeter than sugar. Only a tiny amount of this substance is required to sweeten something.

When choosing sweeteners, it is important to consider health issues. Making desserts with lots of white sugar, for example, results in high-calorie dishes that could lead to weight gain. There are those who prefer LCSs for this very reason. Apart from calories, however, some research links consuming artificial LCSs with various other health concerns. Some LCSs contain strong chemicals suspected of causing cancer, while others have been shown to affect memory and brain development, so they can be dangerous, especially for young children, pregnant women, and the elderly. There are a few relatively natural alternative sweeteners, like xylitol and sorbitol, which are low in calories. Unfortunately, these move through the body extremely slowly, so consuming large amounts can cause stomach trouble.

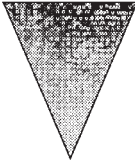
When people want something sweet, even with all the information, it is difficult for them to decide whether to stick to common higher calorie sweeteners like sugar or to use LCSs. Many varieties of gum and candy today contain one or more artificial sweeteners; nonetheless, some people who would not put artificial sweeteners in hot drinks may still buy such items. Individuals need to weigh the options and then choose the sweeteners that best suit their needs and circumstances.

問 1 You learn that modern science has changed the world of sweeteners by

43 .

- ① discovering new, sweeter white sugar types
- ② measuring the energy intake of Americans
- ③ providing a variety of new options
- ④ using many newly-developed plants from the environment

問 2 You are summarizing the information you have just studied. How should the table be finished? 44

Sweetness	Sweetener
high	Advantame
	(A)
	(B)
	(C)
	(D)
low	

- ① (A) Stevia (B) Sucralose
(C) Ace-K, Aspartame (D) HFCS
- ② (A) Stevia (B) Sucralose
(C) HFCS (D) Ace-K, Aspartame
- ③ (A) Sucralose (B) Stevia
(C) Ace-K, Aspartame (D) HFCS
- ④ (A) Sucralose (B) Stevia
(C) HFCS (D) Ace-K, Aspartame

問 3 According to the article you read, which of the following are true?

(Choose two options. The order does not matter.)

45

•

46

- ① Alternative sweeteners have been proven to cause weight gain.
- ② Americans get 14.6% of their energy from alternative sweeteners.
- ③ It is possible to get alternative sweeteners from plants.
- ④ Most artificial sweeteners are easy to cook with.
- ⑤ Sweeteners like xylitol and sorbitol are not digested quickly.

問 4 To describe the author's position, which of the following is most appropriate?

47

- ① The author argues against the use of artificial sweeteners in drinks and desserts.
- ② The author believes artificial sweeteners have successfully replaced traditional ones.
- ③ The author states that it is important to invent much sweeter products for future use.
- ④ The author suggests people focus on choosing sweeteners that make sense for them.