

## 第67回(令和3年12月) 文章入力スピード認定試験(英語) 問題

This strange story began many years ago in a country far away, where a 72  
small valley lay at the foot of a high mountain. The people who lived in 146  
the gorge often looked up at the summit. Sometimes through a break in the 221  
clouds they could see a huge castle with high walls and dark towers. No 294  
one from the valley had ever entered the castle, or had even climbed the 367  
steep path up the mountain. 397

Once the valley had been a wonderful place to live. Everyone was 464  
happy and no one ever went hungry. They all worked together in the fields 539  
which grew fine crops. The trees in the orchards were always heavy with 612  
fruits, and the vineyards grew huge juicy grapes for wine. All was peace 686  
and content. Then a very strange thing happened in one autumn. When the 760  
villagers went to gather in their harvest, strangely all their fine crops 834  
had gone. Every crop had vanished. The trees were stripped bare of fruits 910  
and not one ear of corn was left anywhere. One angry farmer cried that it 985  
must have happened during the night. Another yelled that some wicked 1,055  
thieves had taken the lot. He waved his stick furiously and cried just to 1,130  
wait till he caught up with the thieves. 1,173

For weeks, the villagers tried to find the thieves. They looked for 1,243  
clues, such as footprints on the ground or a trail of grain, but they found 1,319  
nothing. It was as if someone had waved a magic wand and made the whole 1,392  
harvest vanish. That winter, the people lived on the food they had wisely 1,467  
stored in their barns over the years. The following spring, they planted 1,541  
their crops once again. Autumn came and the harvest was even bigger and 1,614  
better than before. Every night, the men stood guard in the fields and 1,686  
orchards. They were taking no chances this time. But in one dreadful 1,757  
morning the village awoke to find everything had gone again, just the same 1,832  
as the year before. 1,854

Human beings have evolved an elaborate system of physiological 1,918  
mechanisms to ensure that the needs of body for metabolic fuels and 1,986

nutrients are met, and to balance food intake with energy expenditure. The 2,062  
physiological systems for the control of appetite interact with genetic, 2,135  
social, environmental, and psychological factors have to be understood in 2,209  
order to understand eating behavior. 2,248

There are hunger centers in the brain, that is, in the hypothalamus, 2,318  
which stimulate us to begin eating, and satiety centers that signal us to 2,392  
stop eating when hunger has been satisfied. Damage to, or destruction of, 2,467  
the hunger center leads to more or less complete loss of appetite, while 2,540  
electrical stimulation leads to feeding even if the person has eaten 2,609  
enough. Similarly, destruction of the satiety centers leads to 2,673  
uncontrolled eating, and electrical stimulation leads to cessation of 2,743  
feeding, even when someone is physiologically hungry and in the fasting 2,815  
state. 2,824

These appetite control centers have links to other brain regions. The 2,896  
amygdala controls food behavior. It knows what is food, as opposed to 2,967  
nonfood. Young children put almost anything into their mouth, and 3,034  
gradually learn what is food, and what is not. Another structure deep in 3,108  
the brain, the nucleus accumbent is part of the reward system of the brain, 3,184  
and is related with the pleasure of eating and rewards from food. The 3,255  
appetite control centers also have connections to the cortex and other 3,326  
higher brain nuclei, which psychological factors can over-ride 3,389  
physiological control of appetite, including individual like or dislikes. 3,465

The appetite centers respond to the different patterns of metabolic 3,534  
fuels in the bloodstream in the fed and fasting states, and also to 3,602  
hormones such as insulin and glucagon, as well as to a number of hormones 3,676  
secreted by the gastro-intestinal tract. Insulin is secreted by the 3,745  
pancreas as blood glucose rises. Glucagon is produced by the pancreas when 3,821  
blood glucose falls. One of these hormones, ghrelin, which is secreted by 3,896  
the stomach, acts to increase appetite and stimulate feeding. The others, 3,971

which are secreted mainly by the small intestine, act as satiety signals, 4, 045  
telling us that we have eaten enough. 4, 085

The appetite centers control food intake remarkably. Without 4, 148  
conscious effort, most people regulate their food intake to match energy 4, 221  
expenditure very closely. They neither waste away from lack of metabolic 4, 295  
fuel for physical activity nor lay down excessively large reserves of body 4, 370  
fat. Even people who have excessive reserves of body fat and who can be 4, 443  
considered to be so overweight or obese as to be putting their health at 4, 516  
risk balance their energy intake and expenditure comparatively well. The 4, 590  
average intake is a metric ton of food a year. While obese people weight 4, 664  
about two hundred fifty to three hundred kilograms, average ones are 4, 733  
between sixty to one hundred kilograms. It takes many years to achieve 4, 805  
such a weight. A gain or loss of five kilograms of body weight over six 4, 878  
months would require only a one percent daily mismatch between food intake 4, 953  
and energy expenditure. 4, 979

There is a long-term regulation of food intake and energy expenditure, 5, 051  
in addition to the immediate control of feeding by sensations of hunger and 5, 127  
satiety. This is a function of the hormone leptin, which is secreted by 5, 200  
adipose tissue, where the fat reserves of the body are took in. The 5, 269  
circulating concentration of leptin is determined mainly by the amount of 5, 343  
aliphatic tissue, so the leptin acts as a signal of the size of body fat 5, 416  
reserves. In women, low levels of leptin, reflecting adipose tissue saves 5, 491  
which are not adequate to permit a normal pregnancy, both increase food 5, 563  
intake and lead to cessation of ovulation and menstruation. This happens 5, 637  
when body weight falls to less than ninety-nine pounds. Beside, as for the 5, 713  
role in appetite control, leptin also acts to increase energy expenditure 5, 787  
and body temperature. 5, 808