

群馬県立県民健康科学大学大学院
看護学研究科看護学専攻（博士前期課程）
2021年度 一般選抜試験問題

外国語試験問題

群馬県立県民健康科学大学大学院

群馬県立県民健康科学大学大学院 看護学研究科看護学専攻 (博士前期課程)

2021年度 一般選抜・社会人特別選抜試験

外国語試験問題 問題用紙

以下の文章を読んで、問に答えなさい。

Imagine if your dog could sense when you're about to pass out -- and do so in enough time to stop it.

Now, imagine that all they need is their nose.

①This scenario is a reality for hundreds worldwide, including Claire Pesterfield, a pediatric diabetes nurse at Addenbrooke's Hospital in Cambridge, United Kingdom. Pesterfield has type 1 diabetes, a form of the condition in which the pancreas is unable to produce any insulin and cannot regulate blood sugar. Her sugar levels can fall dangerously low -- known as hypoglycemia -- causing shakiness, confusion, disorientation and potentially unconsciousness.

But her golden Labrador retriever sidekick is ready to alert her before it kicks in, day or night.

"If he smells a hypo coming, he'll jump up and put his paws on my shoulders to let me know," Pesterfield said.

②Her dog, Magic, is one of 75 medical alert assistance dogs trained by the UK charity Medical Detection Dogs to help people monitor a range of health conditions, including type 1 diabetes. About 10% of all people with diabetes are estimated to have type 1, in which the risk of hypoglycemia is far greater.

The dogs have been in service since 2009, trained to detect changes in their owner's breath when blood sugar declines, but the precise scents they're picking up have remained largely unknown -- until now.

Narrowing down the scent

"We're interested if there are messages coming off the body at different blood sugar levels, either on the skin or breath," said Dr. Mark Evans, a consultant in diabetes and general medicine at Addenbrooke's Hospital and a lecturer in general medicine at the University of Cambridge.

③In a recent study, Evans explored 10 chemicals released on the breath of eight volunteers with type 1 diabetes when sugar levels become critical. He found that one chemical almost doubled in quantity: a compound called isoprene.

Identifying the compound could lead to its use in technologies, such as a breathalyzer, to monitor blood sugar on the breath of people with diabetes, just like a dog does.

"Humans aren't sensitive to the presence of isoprene, but dogs, with their incredible sense of smell, find it easy to identify," Evans said.

④Patients currently test their blood sugar using a prick test*, but new technology could offer a noninvasive means of tracking changes to benefit patients without dogs like Magic at their side.

"The dogs are already out there but are in limited supply," Evans said.

The findings are also limited, as patients were monitored in the lab, and only eight people were tested, all women. "The caveat is, we've done this in a very controlled setting... We need to do real-world testing," Evans said.

In addition, it's likely that the dogs are sensing more than just isoprene.

⑤The study "is well-done and presents a possible biomarker that we could measure on human breath to indicate hypoglycemia ... [but] in addition to isoprene, there may be other physiological and behavioral responses in people that they are picking up on," said Nancy Dreschel, an animal behavior expert at Penn State University.

(後略)

[Source: How dogs sniff out diabetes on your breath, Meera Senthilingam, CNN, July 11, 2016]

<https://edition.cnn.com/2016/07/11/health/dogs-smell-diabetes-on-human-breath/index.html>

(2020年6月24日アクセス)

注 * prick test : 穿刺針で指先の血液を採取する方法

問 下線部①～⑤の日本語訳を解答欄に記述しなさい。ただし、名前や団体名は英語のままがかまわない。

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外国語試験問題 解答用紙1

受験番号	氏名

問

①

②

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外国語試験問題 解答用紙2

受験番号	氏名

問 (つづき)

③

④

群馬県立県民健康科学大学大学院
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2021年度 一般選抜・社会人特別選抜試験
外国語試験問題 解答用紙3

受験番号	氏名

問(つづき)

⑤

※得点

注 意 事 項 (外国語試験)

- 1 外国語の試験時間は、11時10分～12時40分です。
- 2 英和辞典の持ち込み及び使用を認めます（付箋等が貼られていないもの）。ただし、電子辞書の使用は認めません。
- 3 試験問題用紙の表紙が願書提出時の選抜区分（「一般選抜」）であることを確認してください。
- 4 問題用紙は2枚、解答用紙は3枚です。
- 5 すべての解答用紙の所定の欄に、必ず受験番号・氏名を記入してください。
- 6 解答は、すべて解答用紙に記入してください。ただし、※印欄には記入しないでください。
- 7 問題用紙・解答用紙に不鮮明な部分や汚れなどがある場合は、声を出さずに手を挙げて、監督員の指示に従ってください。
- 8 試験中に質問や用便などの用件がある場合も、声を出さずに手を挙げて、監督員の指示に従ってください。
- 9 試験開始後、30分間は途中退場を認めません。30分経過後、途中退場する場合は、監督員の指示に従い、解答用紙を監督員に提出したのち退場してください。
- 10 問題用紙・解答用紙を持ち帰ることはできません。
- 11 不正行為や、他の受験生に迷惑となる行為をした場合は、退場させることがあります。