有多少热量是从你的头部散失的？ How much heat do you lose from your head?

Hello. This is 6 Minute English from BBC Learning English. I'm Rob.

大家好。这里是 BBC 学习英语栏目的六分钟英语。我是罗伯。

And I'm Georgina.

我是乔治娜。

Oh! It's freezing cold outside today, Georgina!

哦！今天外面冷死了，乔治娜！

Make sure you wrap up warm.

记得穿得暖一点。

I'll put my woolly hat on.

我要带上我的羊毛帽。

When I was growing up I was told that you lose half your body heat from your head.

从小别人就告诉我头会散失身体一半的热量。

Oh, don't believe that, Georgina!

哦，别信哪个，乔治娜！

It's just a popular myth - you know, something people think is true which actually isn't - like 'bulls get angry when they see the colour red', or 'goldfish only have a three-second memory'.

这只是个流行的迷信而已 —— 你知道的，人们认为这是真的，其实不是的 —— 就像“公牛看到红色的时候会发怒”，或者“金鱼只有三秒记忆”。

Oh... I thought red really did make bulls angry!

哦，我以为红色真的会让公牛发怒！

But you're right, there is some disagreement over the age-old question: should I wear a hat when it's cold outside?

但是你是对的，人们对于这个古老的问题一直有争议：外面很冷的时候我应该戴帽子吗？

In this programme, we'll be asking how much body heat we lose from our head and discovering that a simple answer isn't so easy to find.

在本期节目中，我们将探寻有多少身体热量从头部散失，并且会发现很难找到简单的答案。

But first, it's time for my quiz question.

但是首先是我的小测试。

And let's start by asking someone who knows all about surviving in the cold - the US army.

我们先来问问最了解如何在寒冷中求生的人 —— 美国军队吧。

添加的词汇

According to the 'Cold Weather Survival' chapter of the US army field guide, how much heat is lost in the cold through an uncovered head?

根据美军战地指南的“寒冷天气求生”这一章，不加任何防护措施的头会散失多少热量?

Is it: a) 30 to 35%, b) 40 to 45%, or c) 50 to 55%? You might say it's just a popular myth, Rob, but I still think half your body heat is lost from the head, so I'll say c) 50 to 55%.

是 A. 30% 到 35%，B.40% 到 45%，还是 C. 50% 到 55%? 罗伯，你可能会说这只是个很流行的迷信，但是我还是认为身体一半的热量从头部散失，所以我要选 C. 50% 到 55%。

OK, Georgina, we'll come back to that later.

好的，乔治娜，我们稍后再说回这个。

Anyway, whichever answer is correct, the US army obviously thinks a large percentage of body heat escapes through the head.

不管怎样，无论哪个答案是正确的，很显然美军认为身体很大一部分热量是从头部散失的。

But that might not be the whole picture.

但是这可能并不是事情的全貌。

Over the years, experiments to measure body temperature in the snowy wastelands of Canada and Alaska have given wildly different results - mostly because of variations in the methods used, for example, whether the volunteer's head was covered or not, and whether they were dry or submerged in water.

这些年来，用来测量在加拿大和阿拉斯加的冰天雪地中的身体温度的实验给出了极为不同的结果 —— 很大程度上是因为使用方法中的变量，例如，志愿者的头上有没有戴东西，以及他们是干燥的，还是泡在水里。

So maybe the US army's view is out of date.

所以也许美军的观点已经过时了。

And here's surprising information that Tim Harford, presenter of BBC World Service programme, More or Less, found after a quick search on Google.

以下是 BBC 世界服务节目《或多或少》的主持人蒂姆·哈尔福德在谷歌上快速搜索后发现的一些惊人信息。

The head accounts for about 7% of the body surface area and the heat loss is fairly proportional to the amount of skin that's showing.

头占身体表面积的 7%，而热量散失跟露在外面的皮肤量是成比例的。

A human body's surface area means the total area of skin on its outer surfaces - that's the head, chest - or torso, plus the arms and legs.

人类身体的表面积指的是它外部表面的所有皮肤的面积 —— 即头、胸 —— 或躯干，加上手臂和腿。

According to this view, heat loss - meaning the total amount of heat transferred away from something through its surface, is proportional to body surface area.

根据这个观点，热量散失 —— 指的是某物通过其表面所传送出去的热量的总量，跟身体的表面积成比例。

In that case, a 50% heat loss from the head, which only makes up 7% of the body's surface area, seems like an overestimation.

在那种情况下，50% 的热量散失只来自于占身体表面积 7% 的头部这个说法似乎有点高估了。

In the 1950s, other military experiments were carried out in Canada on soldiers wearing arctic warfare clothing - the kind of super-warm thermal clothes you might wear in sub-zero temperatures - but with nothing to cover their heads.

在 20 世纪 50 年代，在加拿大对穿着极地战服 —— 你可能会在零度以下穿的那种超级保暖的衣服 —— 但头上没有任何穿戴的士兵进行了其他军事实验。

Here's professor of physiology, Mike Tipton, taking up the story with BBC World Service programme, More or Less.

以下是生理学教授麦克·提普顿继续跟 BBC 世界服务节目《或多或少》讲述这个故事。

The question was: how important is the head now...to also provide some equipment forms...a hat or some form of insulation?

问题是：提供一些装备……帽子或某种隔热形式对于头来说有多重要?

And in that scenario of course, when you've got insulation over much of the rest of the body preventing heat loss, then obviously the percentage of heat loss from the head is going to be high...and at minus 4 degrees Celsius, it amounted to about half of the resting heat production of the body.

当然在那种情况下，当你身体的大部分都被密闭了以防止热量散失，那么很显然头部散失的热量百分比就会很高了……在零下 4 摄氏度，这占了身体在静息状态下产生的热量的将近一半。

Here the soldiers' bodies were protected with insulation - thick material used to stop heat from escaping.

以下是士兵的身体被隔热材料保护 —— 防止热量散失的厚实材料。

Since their heads were exposed to the cold, around half of their body heat escaped that way when resting - not moving or doing anything active.

因为他们的头暴露在冷空气中，他们身体大约一半的热量在静息时 —— 不动或什么事情都不做——就那样散失了。

And so the idea that half your body heat is lost through the head slowly became a popular myth.

所以你身体一半的热量通过头部散失这个说法就慢慢变成了一个流行的迷信。

But before you throw your woolly hats in the bin, there's another consideration to bear in mind; one that concerns your core temperature - that's the internal temperature inside your body, including the blood, heart, and other vital organs.

但是在你把羊毛帽扔到垃圾桶里之前，还要记住另一个考量；跟你的核心温度 —— 即你身体的内部温度，包括血液、心脏和其它重要器官 —— 有关。

When the head is allowed to get cold and the body is well insulated, the body's core temperature drops rapidly due to the circulation of blood.

当身体被隔绝得很好只把头露出来的时候，身体的核心温度会因为血液循环而急剧下降。

Wow! This question really is blowing hot and cold - now I have no idea how much heat is actually lost from the head!

哇！这个问题真的是反复无常 —— 现在我已经不知道实际上有多少热量从头部散失了！

Why don't you just tell me the answer, Rob?

你直接告诉我答案吧，罗伯。

OK, then.

好吧。

Well, in my quiz question I asked how much heat the US army guide says is lost through the head.

嗯，在我的问题中，我问你美军指南中说有多少热量从头部散失。

I guessed, c) 50 to 55%, or roughly one half.

我猜的是 C. 50% 到 55%，或者大约是一半。

Was I right?

我答对了吗?

Well, you were warm, Georgina...but not right.

嗯，你很暖和，乔治娜.....但是没答对。

In fact the army field guide says, b) 40 to 45%, but as we've seen in this case, cold facts are hard to come by.

事实上军队的战地指南说的是 B. 40% 到 45%，但是正如我们在这里看到的那样，很难得出一个确切的事实。

Let's recap our vocabulary then, because we're still not sure if wearing a hat to keep warm is just a popular myth - something people believe to be true but which actually is not.

那么我们来回顾单词吧，因为我们还是不确定是否戴帽子保暖只是一个流行的迷信 —— 人们认为是真的但其实不是的事物。

It seems that heat loss - the total heat transferred away from something, is linked to the surface area or total area of the body's outer surfaces when exposed to the cold.

似乎热量散失 —— 从某物传送出去的总热量 —— 跟表面积或身体暴露在寒冷之中的外部总面积有关。

But wearing insulation - material used to stop heat from escaping, may change the body's resting temperature - its temperature when not moving and at rest...

但是穿上隔绝材料 —— 被用来阻止热量消散的材料 —— 也许会改变身体的静息温度 —— 在不动或休息时它的温度.....

...and also affect your core temperature - your body's internal temperature, including the heart and blood.

.....并且还会影响你的核心温度 —— 你身体的内部温度，包括心脏和血液。

That's all for this programme.

这就是本期节目的所有内容。

Remember to wrap up warm for the winter.

请记得冬天穿暖一点。

And maybe pop a woolly hat in your pocket to wear, just in case!

以防万一的时候还是要从口袋里拿出羊毛帽带上！

See you again soon for more trending topics and vocabulary here at 6 Minute English.

下次节目再见，在 BBC 六分钟英语讨论更多流行话题词汇。

Bye for now!

再见！

Bye!

再见！