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The picture below shows a sauna. A sauna is a room where the temperature is raised to levels well above normal room temperature.



A man sits in a sauna and after a few minutes his body temperature begins to rise.

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The brain has a role in detecting a rise in body temperature. Which part of the brain will detect this rise in temperature?

Thermoregulatory centre

[1 mark]

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How does this part of the brain detect a rise in body temperature?

It has (temperature) receptors [1]

[2 marks]

Which detect the blood temperature [1]

WARNING : very important that you don't refer to blood vessels moving nearer to the skin

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One response to higher temperatures is the skin becoming red. Explain why the skin may appear red when the body temperature rises.

Blood vessels in skin dilate/get wider [1]

[2 marks]

More blood near the surface of the skin [1]

To lose/radiate heat [1]

TOP TIP : Shivering is about muscles contracting, not expanding and relaxing

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The man leaves the sauna and jumps into a cold swimming pool. He begins to shiver. Explain why he shivers.

His muscles contract [1]

[2 marks]

And provide heat from respiration [1]

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Alcohol dilates blood vessels in the skin. Suggest why it is dangerous to drink alcohol between going from sauna to swimming pool.

More blood close to/near to the surface [1]

[2 marks]

More heat lost or heat lost faster or cools faster [1]

WARNING : A common mistake is that blood near the surface increases evaporation. This is not so, it causes more radiation of heat