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Biology Discussion

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Biology Discussion

Question 1

From the video, the food we consume comprises organic matter made up of molecules. More importantly, food contains four classes of biological molecules; Lipids, carbohydrates, nucleic acids and proteins components. Each component is essential and plays a different role in the body once consumed as food (TED-Ed, n.d). In addition to that, the gut microbiome comprises millions of bacteria, fungi, and microbes that play a crucial role in the health and well-being of humans. The gut microbiome helps govern food breakdown, enhances the body's immunity, among other health aspects. It is important to note that when there is an imbalance of the healthy and unhealthy microbiomes in the gut region, undesirable weight gain, increased glucose levels, and high cholesterol, among other conditions, arises.

The primary lesson from the video is that the food we eat comprises of different components; some are harmful while others are beneficial to the body. In addition to that, different foods affect the gut in different ways, and people should be aware of what they consume. Apart from that, I have cooperated with some healthy eating habits and practices in my life. For instance, I try to eat balanced food. While doing so, I avoid eating junk food that is tastier in the mouth but has a detrimental effect on my body. I also eat food that I know how it is prepared. For instance, I try and prepare food at home and carry it when going out. More importantly, I try to eat at regular intervals to ensure that I am not too full or hungry.

Question 2

Cells are minute since it makes them more productive. Smaller cells transfer signals more quickly and effectively than larger ones. The cell's nucleus, or "central node," initiates intercellular communication by translating genetic material into molecular structures like

proteins. These amino acids and other particles are then guided to specific places within the cell to carry out their functions. The larger the cell, the longer it lasts for these microbes and other biological processes to carry out their roles (TED-Ed, n.d). This is a very energy-intensive and less-than-ideal scenario, so cells must be tiny. In addition to that, organisms do not comprise giant cells. The simple explanation for this aspect of cells is that as cells grow in size, their density increases by three, while their thickness is increased by two. This increment leads to a lower surface-area-to-volume proportion, which makes information exchange via cells less productive. While reaching its intended destination, data entering, travelling via, or departing the cells must move a much longer distance (due to the higher density). Elevated cell surface-area-to-volume margin (smaller cell surface area) is preferred for the most effective cell functions. That is why organisms cannot have more giant cells.

Furthermore, the cells' smaller diameter and more significant density do not allow sufficient materials to diffuse in and out of the cell. Since data can enter and leave a cell via its cell membrane, the higher the surface-to-volume margin, the more compounds can go in and out of per unit mass. That is why cells are small and cannot grow and become big since the movement of compounds and information will be impossible.

References

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TED-Ed. (2016). What is the biggest single-celled organism? - Murry Gans

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