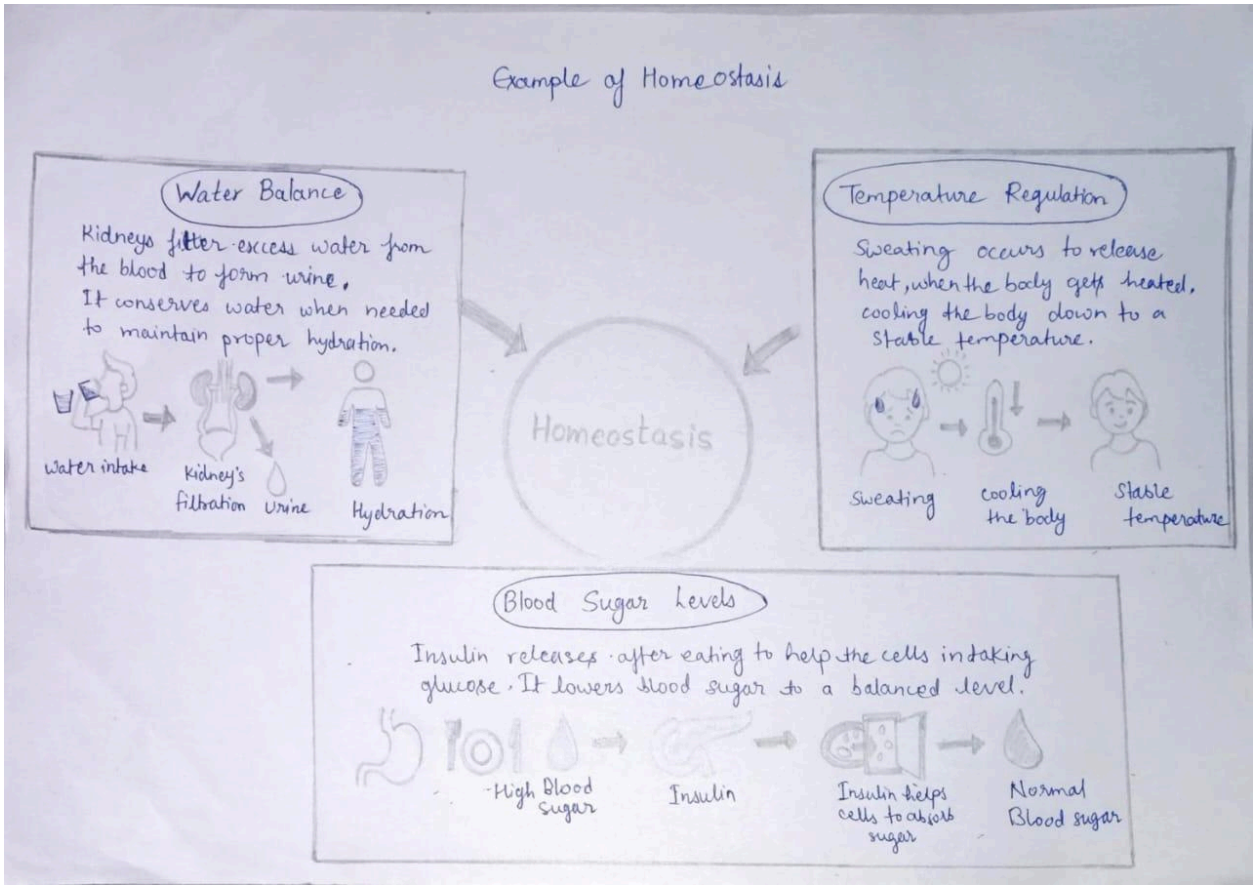
1. **Creating My Homeostasis Diagram:**



Water Balance:

It is also known as the process of osmoregulation. The water balance is influenced by the microgravity and the light. The observations suggest that water retention can affect osmoregulation (Olde Engberink et al., 2023). Supposedly, if a person is suffering from dehydration, the kidneys conserve water by producing concentrated urine. The representation of the diagram suggests that the kidney processes a large amount of dilute urine after intaking too much water. It helps in maintaining the water balance of the body.

Temperature Regulation:

The body temperature requires metabolic activity to maintain itself, such as the heat source (Cramer et al., 2022). In this diagram, I have represented the mechanism by showing sweating. It

helps in cooling down the body temperature. For instance, if it's a hot summer day, the body is getting too hot. It starts sweating. It can be observed through this process that evaporation of sweat from the skin helps cool the body down. This process ensures the body brings the temperature back to the normal point.

Blood Sugar Levels:

This example of homeostasis, which is represented in the diagram, explains the signaling of the kidneys to the cells to take glucose from the blood. For instance, if a person's intake of food increases their sugar level. The pancreas will automatically release insulin and send the signal to the brain to take in glucose. It lowers the blood sugar level to the normal state.

2. **Answering the Questions:**

Homeostasis:

The terms homeo, meaning similar, and stasis come from the word static, meaning fixed, together creating the word homeostasis. It suggests that the process helps in maintaining stability among the living organisms. It maintains the internal and external changes to balance the mechanism of the body (Pichot, Corbier & Chouchou, 2024). It explains that the process helps in keeping the body's constant internal environment regardless of the changes occurring in the external surroundings.

Importance of Homeostasis for Living Organisms:

Homeostasis balances each factor and mechanism of living organisms. It has been known that the cellular processes only work perfectly while stabilized in a narrow range of conditions. The enzymes also help in forming and maintaining the body in a similar way. For instance, temperature and water level are required to be balanced, or else the body will feel unbalanced, and the mechanisms will break their continuity.

3. **Reflection**

I have observed the whole process and have concisely written about the process of Homeostasis. I have learned that this process provides a dynamic network in keeping the condition within precise limits. For instance, the examples that I have shared are either water balance or temperature regulation, both representing the state where some element brings the normal state of the body. It gave me knowledge regarding the topic and made me realise that these small elements are ensuring the survival rate of our body.

Reference:

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Cramer, M. N., Gagnon, D., Laitano, O., & Crandall, C. G. (2022). Human temperature regulation under heat stress in health, disease, and injury. *Physiological reviews*. DOI: https://doi.org/10.1152/physrev.00047.2021

Pichot, V., Corbier, C., & Chouchou, F. (2024). The contribution of granger causality analysis to our understanding of cardiovascular homeostasis: from cardiovascular and respiratory interactions to central autonomic network control. *Frontiers in Network Physiology*, *4*, 1315316. DOI: https://doi.org/10.3389/fnetp.2024.1315316