**Week 3: Cells and Metabolism**

Metabolism is a chemical reaction through which the cells of the body change food into energy. It that is divided into anabolism and catabolism. Catabolism involves breaking down of organic molecules from larger to smaller molecules, and in the process releasing energy. Anabolism on the other hand involves synthesizing compounds from simpler substances that are required by cells. Metabolism is therefore important to the cell sin that it is the main source of energy and cells require energy to grow and multiply within the body. IT provides the food that is used to run cellular processes. Every cellular process requires ATP as a primary energy source and also as a signaling molecule.

In cellular respiration, living organisms combine foodstuff molecules with oxygen, diverting the chemical energy in substances, to life promoting and sustaining activities (Dam et al., 2019). The process also discards as waste, water and carbon dioxide.

Many people often confuse physiological respiration and cellular respiration interchanging one for the other, believing they mean the same. The two processes are related but are not the same. Physiological respiration is made up of external and internal respiration. External respiration, also known as breathing, is the intake of air from the environment into the lungs (Chourpiliadis & Bhardwaj, 2019). It involves inhalation and exhalation. In internal respiration cells and blood vessels exchange oxygen and carbon dioxide. Cellular respiration occurs due to physiological respiration. Without the intake and exchange of air as per physiological respiration, then there would be no oxygen to create energy from carbohydrates.

**References**

Chourpiliadis, C., & Bhardwaj, A. (2019). Physiology, respiratory rate. <https://europepmc.org/article/nbk/nbk537306>

Dam, M., Ottenhof, K., Van Boxtel, C., & Janssen, F. (2019). Understanding cellular respiration through simulation using Lego® as a concrete dynamic model. *Education Sciences*, *9*(2), 72. <https://www.mdpi.com/2227-7102/9/2/72/pdf>