**Chemistry Question and Answer**

1. **Chemical relationship between carbohydrates and fats**

Carbohydrates and fats are macromolecules, meaning they are organic compounds found in the body of an organism. The two are also made of smaller units referred to as monomers that combine to make the macromolecules. When studying the chemical structure, fats and carbohydrates all contain the same group of elements which are oxygen, carbon and hydrogen. The only difference in the carbohydrates and fats is arrangement of their elements. The chemical formula of carbohydrates is Cx(H2O)y while that of fats is CH3(CH2)nCOOH showing they are made up of similar elements.

1. **Difference between saturated and unsaturated fats**

Saturated fats remain solid even when in the body and could therefore cause increase in fat deposits in the blood vessels. Unsaturated fats in the other hand stay liquid at room temperature and therefore unlikely to clog arteries. Mitch is told to avoid the saturated fats as they would be deposited in his arteries and cause heart related conditions or artery diseases such as atherosclerosis.

1. **Saturates vs unsaturated fats; which is better to consumed?**

Unsaturated fats are a better consumption choice because they do not harden when in the body or stay solid in room temperature. They remain liquid and integrate with blood other than being deposited within arteries. Saturated fats on the other hand clog the arteries and also cause the hardening of the arteries. They are thus a cause of many of the lifestyle diseases such as obesity and atherosclerosis.

1. **Trans fat and why it is common in processed foods**

Trans fats fall under unsaturated fats that come in the natural form in ruminant animals and in artificial form through modification. They are considered to be the worst types of fats that are consumed by individuals. Trans fats are made when the fats in their liquid form are turned into solid in processes such as shortening as is the case for margarine. Despite the health disadvantages of using trans-fats, many companies still use it in their products. The rationale is that such fats are easily available and affordable. They reduce the costs of production for the companies. Oil with trans fats are also economically viable as they can be used many times especially in fast food outlets.

1. **Physical conditions associated with over high triglyceride levels**

Failure to reduce the intake of triglycerides causes various physical conditions that will influence the overall well-being and health condition of Mitch. The following are some of the physical conditions that might develop:

*Heart disease*- the trans fats raise the LDL (bad) cholesterol levels in Mitch’s thus lowering the HDL. The cholesterol builds up in the blood vessels thus causing heart disease. The clogging of blood vessels affects the flow of blood and the supply of nutrients and oxygen to body organs. The condition might lead to a stroke (Wang et al., 2016).

*Obesity*- Consuming trans fats occasionally might also lead to the growth of the body fat to abnormal levels. The excessive fat accumulation leads to high BMI that affects the general health and physical health of an individual.

**References**

Wang, Q., Afshin, A., Yakoob, M. Y., Singh, G. M., Rehm, C. D., Khatibzadeh, S., ... & Global Burden of Diseases Nutrition and Chronic Diseases Expert Group (NutriCoDE). (2016). Impact of nonoptimal intakes of saturated, polyunsaturated, and trans fat on global burdens of coronary heart disease. Journal of the American Heart Association, 5(1), e002891.