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**Answer Question #1 and ONE of Questions 2, 3 OR 4.**

**Confine your answer to no more than 500 words. You do not need to provide references but you must provide compelling answers.**

**1) What is most of the food we eat used for?**

There are two main purposes for the food we eat. Firstly, the food we eat is used to build and maintain cellular structures, which are required for maintenance and for us to grow and develop. Secondly, energy is obtained from breaking chemical bonds in the food we consume, which come primarily from organic compounds. As endotherms, humans have a substantially higher energy requirement to maintain our core body temperature.

The food we consume is converted into three primary groups of macronutrients, namely carbohydrates, fats and proteins, any of which can be broken down and used as an energy source to construct ATP. These three groups can be converted to any other form by many pathways. Glucose is a sugar that is created by breaking down carbohydrates such as sugar and starch. Some excess energy is stored in the muscle and liver glycogen, but this is limited to 1800-2000 calories, while the remainder is converted to fat. Glycogen stores are replenished with every meal we consume.

**2) What foods have empty calories? Are they really bad for us?**

A lot of heavily processed and packaged foods, such as junk food or sweets, primarily contain empty calories. This type of food is high in calories while giving little to no nutritional value. They have high sugar and solid fat content, which can cause weight gain if the calories are not burnt off.

Aside from the obvious weight gain, foods that contain empty calories can also cause nutritional deficiencies if one’s diet is largely made up of them, leading to overfed and undernourished people. Due to the widespread eating of empty calories and sedentary lifestyle, there have been higher cases of obesity across countries. We can see a 11.4% increase in obesity prevalence from 1999 to 2017 in the US alone. As we know, obesity leads to further complications such as type 2 diabetes or heart disease.

Empty calories can also cause sugar addiction. Animal studies have found that sugar produces the symptoms that are required to classify it as an addictive substance. Sugar has been shown to have effects such as withdrawal, binging, craving, etc. We have seen evidence in both humans and animals, that consuming sugar shows behavioral and neurochemical overlaps with drug abuse. This can lead to eating disorders, such as binge-eating disorder.

In conclusion, empty calories are terrible for one’s body, especially if it contains copious amounts of processed sugar. However, it does not mean that one can’t eat them at all. Eating sweets or junk food very occasionally should pose no problem.

**3) Is processed food really bad for us?**

**4) What are probiotics and are they necessary in our diet?**

Submit your answers by midnight tonight