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**BIOCHEMISTRY ASSIGNMENT**

**QUESTION 1-** WHAT DO YOU UNDERSTAND BY PRIMARY OR SIMPLE OBESITY?

Simple obesity is characterized by a normal or increased growth rate with an acceleration of bone age maturation. When longitudinal growth slows down in the presence of obesity, a hormonal disturbance should be sought. Despite normal growth, simple obesity is characterized by a reduced GH secretion evaluated by standard provocative tests, the administration of GH-releasing hormone or spontaneous 24-hour secretion. In obese children GH secretion may be as low as in poorly growing children with classical GH deficiency. The endocrine abnormalities along the GH axis seem to involve complex mechanisms at the hypothalamic, pituitary and peripheral level. Recent data suggest that simple obesity is associated with an increase in GH clearance and a decrease in GH synthesis and secretion. It is also associated with high insulin and insulin-like growth factor I levels which may interfere in the complex endocrine interactions. In conclusion, simple obesity is characterized by normal growth in the presence of ‘hyposomatotropism’.

**QUESTION 2-**  HOW DOES CONGENITAL SYNDROME AND DRUG THERAPY AFFECT OBESITY?

Congenital leptin deficiency is a condition that causes severe obesity beginning in the first few months of life. Affected individuals are of normal weight at birth, but they are constantly hungry and quickly gain weight. Without treatment, the extreme hunger continues and leads to chronic excessive eating (hyperphagia) and obesity. Beginning in early childhood, affected individuals develop abnormal eating behaviors such as fighting with other children over food, hoarding food, and eating in secret.

People with congenital leptin deficiency also have hypogonadotropic hypogonadism, which is a condition caused by reduced production of hormones that direct sexual development. Without treatment, affected individuals experience delayed puberty or do not go through puberty, and may be unable to conceive children (infertile).

Pharmacotherapy is a step in the treatment of obesity, approved only when weight loss targets were not reached through lifestyle intervention. During the history of antiobesity drugs, many of them were withdrawn because of their side effects. Various guidelines recommend prescribing drug therapy for obesity through consideration of the potential benefits and limitations. Orlistat deactivates intestinal lipase and inhibits intestinal fat lipolysis. It is actually the only drug on the European market approved for the treatment of obesity. Orlistat therapy reduces weight to a modest extent, but it reduces the incidence of diabetes beyond the result achieved with lifestyle changes. Recently, some effective antiobesity drugs like sibutramine and rimonabant have been removed from the market due to their side effects. The new combination of topimarate and fentermine is approved in the US but not in Europe. The cost effectiveness of long-term pharmacotherapy of obesity is still an unresolved question.

**QUESTION 3:** OUTLINE THE AETIOLOGY OF CANCER AND ITS MOLECULAR BASIS

AETIOLOGY OF CANCER

* Uncontrolled cell growth and tumor formation
* Smoking
* Obesity
* Alcohol
* Virus
* Bacteria and parasite
* Radiations

MOLECULAR BASIS

Discussion of the causes of cancers necessarily involves an examination of the molecular machinery in cells that guides the basic processes of proliferation (increase in cell number by [cell division](https://www.britannica.com/science/cell-division)), differentiation (cell specialization into different tissue types), and [apoptosis](https://www.britannica.com/science/apoptosis) (programmed cell death). Those processes are guided by two innate programs in cells, the [genetic code](https://www.britannica.com/science/genetic-code) and the [epigenetic](https://www.britannica.com/science/epigenetics) code. In cancer each of those codes ultimately becomes altered regardless of whether the [disease](https://www.britannica.com/science/disease) originated with an external or internal factor. Indeed, a fundamental characteristic of a tumour cell is that it begets a tumour cell. In other words, cancer, once [manifest](https://www.merriam-webster.com/dictionary/manifest), becomes an inherited disease of the cell and is therefore self-perpetuating.