**17/MHS01/204**

*1 What do you understand by primary or simple obesity?*

This is obesity resulting when caloric intake exceeds energy expenditure. It is now recognized as a chronic or non-communicable disease. Obesity is a [medical condition](https://en.wikipedia.org/wiki/Medical_condition) in which excess [body fat](https://en.wikipedia.org/wiki/Adipose_tissue) has accumulated to an extent that it may have a negative effect on health. People are generally considered obese when their [body mass index](https://en.wikipedia.org/wiki/Body_mass_index) (BMI), a measurement obtained by dividing a person's weight by the square of the person's height, is over 30 [kg](https://en.wikipedia.org/wiki/Kilogram)/[m2](https://en.wikipedia.org/wiki/Square_metre); the range 25–30 [kg](https://en.wikipedia.org/wiki/Kilogram)/[m2](https://en.wikipedia.org/wiki/Square_metre) is defined as [overweight](https://en.wikipedia.org/wiki/Overweight). Obesity is most commonly caused by a combination of [excessive food intake](https://en.wikipedia.org/wiki/Gluttony), lack of physical activity, and [genetic susceptibility](https://en.wikipedia.org/wiki/Quantitative_trait_locus). Obesity is mostly preventable through a combination of social changes and personal choices. Changes to [diet](https://en.wikipedia.org/wiki/Diet_(nutrition)) and [exercising](https://en.wikipedia.org/wiki/Physical_exercise) are the main treatments. Diet quality can be improved by reducing the consumption of energy-dense foods, such as those high in fat or sugars, and by increasing the intake of [dietary fiber](https://en.wikipedia.org/wiki/Dietary_fiber). [Medications](https://en.wikipedia.org/wiki/Anti-obesity_medication) can be used, along with a suitable diet, to reduce appetite or decrease fat absorption If diet, exercise, and medication are not effective, a [gastric balloon](https://en.wikipedia.org/wiki/Gastric_balloon) or [surgery](https://en.wikipedia.org/wiki/Bariatric_surgery) may be performed to reduce stomach volume or length of the intestines, leading to feeling full earlier or a reduced ability to absorb nutrients from food. Primary obesity is not associated with clinical disorders.

2 *How does congenital syndrome and drug therapy affect obesity?*

Obesity is a chronic disease, and it requires chronic drug therapy. Hypertension, dyslipidemia, diabetes and cardiovascular diseases are leading causes of mortality in the modern world. All of them are strongly linked to obesity. While treating obesity, those conditions are also managed. Obese patients should always be treated through lifestyle interventions, though the results of such interventions are modest. Pharmacotherapy is a second 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.

3 *Outline the aetiology of cancer and its molecular basis*

Cancer is caused by accumulated damage to genes. Such changes may be due to chance or to exposure to a cancer causing substance.

The substances that cause cancer are called carcinogens. A carcinogen may be a chemical substance, such as certain molecules in tobacco smoke. The cause of cancer may be environmental agents, viral or genetic factors.

We should bear in mind, though, that in the majority of cancer cases we cannot attribute the disease to a single cause.

We can roughly divide cancer risk factors into the following groups:

1. biological or internal factors, such as age, gender, inherited genetic defects and skin type
2. environmental exposure, for instance to radon and UV radiation, and fine particulate matter
3. occupational risk factors, including carcinogens such as many chemicals, radioactive materials and asbestos
4. Lifestyle-related factors.

**Alcohol**

Chronic damage due to alcohol consumption can lead to liver cirrhosis and the development of hepatocellular carcinoma, a form of liver cancer. [Alcohol](https://en.wikipedia.org/wiki/Alcohol) is an example of a chemical carcinogen. The World Health Organization has classified alcohol as a [Group 1 carcinogen](https://en.wikipedia.org/wiki/Group_1_carcinogen). In Western Europe 10% of cancers in males and 3% of cancers in females are attributed to alcohol. Worldwide, 3.6% of all cancer cases and 3.5% of cancer deaths are attributable to alcohol. In particular, alcohol use has been shown to increase the risk of developing cancers of the mouth, esophagus, pharynx, larynx, stomach, liver, ovaries, and colon. The main mechanism of cancer development involves increased exposure to [acetaldehyde](https://en.wikipedia.org/wiki/Acetaldehyde), a carcinogen and breakdown product of ethanol.

### Diet

### Some specific foods have been linked to specific cancers. Studies have shown that individuals that eat red or processed meat have a higher risk of developing breast cancer, prostate cancer, and pancreatic cancer.  This may be partially explained by the presence of carcinogens in food cooked at high temperatures.[]](https://en.wikipedia.org/wiki/Causes_of_cancer#cite_note-40) Several risk factors for the development of colorectal cancer include high intake of fat, alcohol, red and processed meats, obesity, and lack of physical exercise. A high-[salt](https://en.wikipedia.org/wiki/Salt) diet is linked to [gastric cancer](https://en.wikipedia.org/wiki/Gastric_cancer). [Aflatoxin B1](https://en.wikipedia.org/wiki/Aflatoxin_B1), a frequent food contaminate, is associated with liver cancer. [Betel nut](https://en.wikipedia.org/wiki/Areca_nut) chewing has been shown to cause oral cancers.

### Obesity

### There is an association between obesity and colon cancer, post-menopausal breast cancer, endometrial cancer, kidney cancer, and esophageal cancer. Obesity has also been linked with the development of liver cancer. The current understanding regarding the mechanism of cancer development in obesity relates to abnormal levels of metabolic proteins (including insulin-like growth factors) and sex hormones ([estrogens](https://en.wikipedia.org/wiki/Estrogens), [androgens](https://en.wikipedia.org/wiki/Androgens) and [progestogens](https://en.wikipedia.org/wiki/Progestogens)). Adipose tissue also creates an [inflammatory](https://en.wikipedia.org/wiki/Inflammation) environment which may contribute to the development of cancers.

## Hormones

Macroscopic appearance of invasive [ductal carcinoma](https://en.wikipedia.org/wiki/Ductal_carcinoma) of the breast. The tumor is the pale, crab-shaped mass at the center, surrounded by normal, yellow fatty tissue.

Some [hormones](https://en.wikipedia.org/wiki/Hormone) play a role in the development of cancer by promoting [cell proliferation](https://en.wikipedia.org/wiki/Cell_growth). [Insulin-like growth factors](https://en.wikipedia.org/wiki/Insulin-like_growth_factor) and their binding proteins play a key role in cancer cell growth, differentiation and [apoptosis](https://en.wikipedia.org/wiki/Apoptosis), suggesting possible involvement in carcinogenesis.

Hormones are important agents in sex-related cancers such as cancer of the breast, endometrial, prostate, ovary, and testis, and also of [thyroid cancer](https://en.wikipedia.org/wiki/Thyroid_cancer) and [bone cancer](https://en.wikipedia.org/wiki/Bone_cancer). For example, the daughters of women who have breast cancer have significantly higher levels of [estrogen](https://en.wikipedia.org/wiki/Estrogen) and [progesterone](https://en.wikipedia.org/wiki/Progesterone) than the daughters of women without breast cancer. These higher hormone levels may explain why these women have higher risk of breast cancer, even in the absence of a breast-cancer gene.