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HW #5 Issues in Biology Questions SLS44-09/4,5

Issues in Biology Questions: Chapter 33

1. Estrogens exert their effects on the body by gene expression. First passing through the plasma membrane of certain cells. Within these cells are receptors for estrogen. When estrogen binds to its receptor, it forms a hormone/receptor complex that moves into the nucleus. It is attached directly to special DNA binding sites. Certain protein-producing genes are turned on as a result. The newly produced proteins guide growth and development. Different cells will have different responses to estrogens. In developing animals, estrogens guide formation of the female reproductive organs, secondary sex characteristics, and bone growth in adolescents. In male animals, estrogens influence fertility.

2. Xenoestrogens differ from phytoestrogens in that all phytoestrogens are xenoestrogens, but not all xenoestrogens are phytoestrogens. They also differ in that xenoestrogens represent environmental estrogens from outside an organism's body. For example, estrogens found in plants or pesticides. All phytoestrogens are xenoestrogens that occur naturally in many organisms such as plants and fungi that have always been part of the human diet. Soybeans and bean sprouts contain phytoestrogens.

3. Women should not use phytoestrogen supplements to prevent cancer or the symptoms of menopause because they have not undergone complete and thorough clinical studies. The side-effects may prove too severe to warrant taking the supplements in the first place. In addition, some phytoestrogens may behave similar to estrogen, and long-term use of estrogen leads to cancer. In addition, the term, phytoestrogen, is simply too broad. Certain phytoestrogens can have little to no effect while others may have too great of an effect. Due to lack of extensive testing, the possibility of cancer, and the broadness of the term phytoestrogen, phytoestrogen supplements should not be used to prevent cancer or the symptoms of menopause.

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