

I. Pain Medications

- A. Aspirin – acetylsalicylic acid; reduces fever by preventing prostaglandins from forming. Prostaglandins are fatty acids that disrupt receptors in nerve cells thus registering pain.
- B. Also reduces the release of histamines, which are compounds that respond to tissue damage by causing inflammation.
- C. Acidity can cause upset stomach
- D. It can thin the blood, reducing stroke/heart attack risk; yet it makes the process of blood clotting more difficult.

II. Antibiotics

- A. They target the specific bacteria that cause a particular disease.
- B. Penicillin was the first antibiotic, a fungus that contains an antibacterial agent.
- C. Bacteria have proven to develop a resistance to some antibiotics over time.

III. AIDS

- A. Viruses are a combination of a DNA and a protein. They take over host cells and insert their own DNA into the cell's chromosomes.
- B. Viruses cause everything from colds to the flu to AIDS; vaccination uses the body's immune system to combat disease – which is only sometimes effective.
- C. Drugs that attempt to fight viruses like AIDS will often try to stop the replication of the infected DNA that spreads to healthy cells.

IV. Sex Hormones

- A. Birth control pills contain synthetic molecules that act like estrogen and progesterone. In conjunction they create a hormone level in the body that initiates a false pregnancy – and the woman's menstrual cycle stops.
- B. The controversial drug RU-486 will interfere with the action of progesterone, the drug needed to maintain pregnancy.

V. Steroids

- A. Adrenocortical steroids suppress the inflammatory effects of certain activities, but leave the person vulnerable to other infections.

- B. Anabolic steroids are synthetic forms of testosterone, which can increase muscle mass at the risk of increased chance of stroke/heart attack/liver damage.

VI. Chemicals to Fight Cancer

- A. Cancerous cells are similar to normal cells, except that they rapidly multiply. Therefore, drugs to fight cancer target cells that replicate quickly.
- B. Compounds like alkylating agents and antimetabolites attempt to stop the synthesis of DNA in a cell, hence causing the cell to die.
- C. Chemotherapy is a word used to describe the treatment of cancer using drugs; sometimes in conjunction with surgery or radiation treatment.

VII. Prozac and Zoloft

- A. Forty plus years ago, valium was a drug used to treat anxiety.
- B. These new drugs do not have the side effects of sedation that valium has.
- C. Clinical depression is caused by a lack of certain neurotransmitters in the brain, particularly one called serotonin.

D. Unlike valium which causes a near immediate anti-depressant effect, these newer drugs must build up in the blood over the course of days and weeks, because they will break down over a few days.