Hormonal (endocrine) system

Endocrine glands make chemicals called hormones and pass them straight into the bloodstream. (Glands that pass their secretions down tubes or ducts to particular places are called 'exocrine glands'.) Hormones can be thought of as chemical messages. They communicate with the body and bring about changes. Usually, hormones take effect quite slowly. The endocrine system works with the nervous system and the immune system to help the body cope with different events and stresses.

A range of functions
Some of the roles of the endocrine system include:

- Growth
- Repair
- Sexual reproduction
- Digestion
- Homeostasis (constant internal balance).

How hormones work
A hormone will only act on a part of the body if it 'fits'. A hormone can be thought of as a 'key', and its target site (such as an organ) has specially shaped 'locks' on the cell walls. If the key (hormone) fits the lock (on the cell wall), then the hormone will work. The endocrine glands get feedback from the body so they can adjust the hormones and keep them at the right levels.

The glands
The glands of the endocrine system include:

- **Pituitary gland** - is inside the brain. It oversees the other glands and keeps hormone levels in check. It can bring about a change in hormone production somewhere else in the system by releasing its own 'stimulating' hormones. The pituitary gland is also connected to the nervous system via part of the brain called the hypothalamus.
- **Thyroid gland** - is inside the throat. It controls the rate of metabolism.
- **Parathyroid gland** - is inside the throat. It controls the level of calcium in the bloodstream.
- **Adrenal glands** - are on top of each kidney. They make a number of different hormones, such as adrenaline and cortisol in times of stress, and sex hormones.
- **Pancreas** - an organ of digestion, which is inside the abdomen. It makes insulin, which controls the amount of sugar in the bloodstream.
- **Ovaries** - are inside the female pelvis. They make female sex hormones like oestrogen.
- **Testes** - they hang in the male scrotal sack. They make male sex hormones like testosterone.

Examples of exocrine glands
Glands that secrete straight to a target site via ducts or tubes are called exocrine glands. Some examples include:

- Salivary glands
- Sweat glands
- Sebaceous glands.

Common problems
Some common problems of the endocrine system include:

- **Diabetes** - too much sugar in the blood caused by problems with insulin production.

- **Premenstrual tension** - symptoms include bloating, breast tenderness and mood swings.
- **Thyroid problems** - when the gland is overactive (hyperthyroidism) or underactive (hypothyroidism).

Where to get help

- The Australian Pituitary Foundation Tel. (02) 9594 5550. Email: pituitary@bigpond.com website

Things to remember

- Endocrine glands secrete hormones straight into the bloodstream.
- Hormones help to control many body functions, such as growth, repair and reproduction.
- The pituitary gland inside the brain oversees the endocrine system.

This page has been produced in consultation with, and approved by:

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