

THE ENDOCRINE SYSTEM

By Dr. Derek Conte

How does the body regulate and balance itself from minute to minute, hour to hour and month to month? What is it that allows the food we eat to be utilized for growth, healing and energy? What causes the female egg to drop each month or a mother's milk to flow? The answer is the endocrine system, which is comprised of the hypothalamus, pituitary gland, pineal gland, thyroid and parathyroid glands, thymus gland, the mammarys, adrenals, the pancreas, ovaries and testes. The brain signals these specialized glands to release hormones to initiate essential chemical actions that maintain life

The word "endocrine" literally means "to cry inside" and that is exactly what happens when the endocrine system works. An example is growth hormone (GH) or somatotropin, responsible for growth and tissue repair. During exercise or when we have low blood sugar or high blood amino acid levels, the hypothalamus leaks ("cries") growth hormone releasing hormone (GHRH) through very small vessels into the anterior pituitary gland which then leaks GH into the general circulation, acting on cells for growth or replacement of tissues. Pro ballplayers looking for an edge have been using growth hormone. The hormone that shuts this process off is called growth hormone inhibiting hormone (GHIH) or somatostatin, released

when blood sugar levels are high.

Another example, the thyroid, involved in energy regulation, has an extra step. When energy use in the body decreases, the hypothalamus leaks thyroid releasing hormone (TRH) through the same small arteries to the anterior pituitary gland which then leaks thyroid stimulating hormone (TSH) into the general circulation striking the target organ: the thyroid. The thyroid then releases hormones T3 and T4 into the blood, increasing the metabolic rate of cells, providing more energy. Do you see the similarity here? The brain assesses the status of the body and makes corrections chemically from the hypothalamus to the pituitary to the target organ which leaks hormones into the bloodstream to change behavior in the cells.

But there are so many hormones in circulation, how is it that they know to only strike the target organ? Each hormone has a different chemical makeup and thus very a specific shape that only fits the intended target organ or organs (drugs really cannot be this specific and this is why they are plagued with side-effects). Again we witness the primacy of the brain in control over the body. The best way to maintain good health is to promote normal, drug-free function. Nature always does it best.

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