outside the institute as well. She lived with a Jewish family and saw firsthand what the rise of the Nazis had meant to their lives. She also visited the Soviet Union. What she saw in the two dictatorships left a lasting impression on her.

Upon her return to the U.S. she took a position as a research associate at the University of California at Los Angeles (UCLA). She quickly earned a reputation as a brilliant teacher, and she continued to do research. In 1941 she married Donn Caldwell, a writer. The marriage ended in 1947, and she married Edward Niles Hooker, an English professor at UCLA. While both of these events were significant in Hooker’s life, there was another event that proved critical for her career.

Sam From, who took a course taught by Hooker in the 1940s, was a homosexual. After he took Hooker’s course the two became friends, and he posed a question to her: Why not conduct research on homosexuals to determine whether homosexuality was some sort of disease or disorder—or, as he believed, non-relevant to a person’s psychological makeup. Hooker was intrigued, in part because her experiences in Europe had left her with a heightened disdain for social injustice.

Hooker applied for a grant from the National Institute of Mental Health to study two groups of men: heterosexuals and nonclinical (i.e., not patients) homosexuals. Despite the fact that this was during one of the most conservative periods in American political history (the notorious McCarthy Era during the 1950s), she was awarded the grant.

Experiments dispel beliefs about homosexuals

Hooker’s experiments were quite simple. She assembled groups of homosexual and heterosexual males and administered a series of standard psychological tests to them. The test results were then presented to a panel of experts on the assessments. No one on the panel could determine which subjects were heterosexual and which were homosexual; moreover, they gave the homosexual subjects high marks on emotional adjustment and personality development.

Hooker presented her results in a series of papers in the 1950s, the most important of which was a 1957 paper published in the Journal of Projective Techniques entitled, “The Adjustment of the Male Overt Homosexual.” She continued her research throughout the 1960s, and in 1967, was appointed head of a study group on homosexual issues for the National Institute of Mental Health. One of the biggest breakthroughs came about in 1973, when the American Psychiatric Association removed homosexuality from its diagnostic handbook—in effect saying that homosexuality was no longer recognized as a form of mental illness.

Hooker retired from UCLA in 1970 and continued in private practice for several years. In 1991 she was awarded the American Psychological Association’s Award for Distinguished Contribution to Psychology in the Public Interest. She died at her home in Santa Monica, California, on November 18, 1996.

See also Homosexuality

George A. Milite

Further Reading


Hormones

Biochemical agents that transmit messages between components of living organisms.

Hormones are biochemical messengers that regulate physiological events in living organisms. More than 100 hormones have been identified in humans. Hormones are secreted by endocrine (ductless) glands such as the hypothalamus, the pituitary gland, the pineal gland, the thyroid, the parathyroid, the thymus, the adrenals, the pancreas, the ovaries, and the testes. Hormones are secreted directly into the blood stream, where they travel to target tissues and modulate digestion, growth, maturation, reproduction, and homeostasis. Hormones do not fall into any one chemical category, but most are either protein molecules or steroid molecules. These biological managers keep the body systems functioning over the long term and help maintain health. The study of hormones is called endocrinology.

Hypothalamus

Most hormones are released into the bloodstream by a single gland. Testosterone is an exception, because it is secreted by both the adrenal glands and by the testes. The major site that keeps track of hormone levels is the hypothalamus. A number of hormones are secreted by the hypothalamus, and they stimulate or inhibit the secretion of hormones at other sites. When the hypothalamus detects high levels of a hormone, it reacts to inhibit
further production. When low levels of a hormone are detected, the hypothalamus reacts to stimulate hormone production or secretion. The body handles the hormone estrogen differently. Each month, the Graafian follicle in the ovary releases increasing amounts of estrogen into the bloodstream as the egg develops. When estrogen levels rise to a certain point, the pituitary gland secretes luteinizing hormone (LH), which triggers the egg’s release into the oviduct.

The major hormones secreted by the hypothalamus are corticotropin releasing hormone (CRH), thyrotropin releasing hormone (TRH), follicle stimulating hormone releasing hormone (FSHRH), luteinizing hormone releasing hormone (LHRH), and growth hormone releasing hormone (GHRH). CRH targets the adrenal glands. It triggers the adrenals to release adrenocorticotropic hormone (ACTH). ACTH functions to synthesize and release corticosteroids. TRH targets the thyroid where it functions to synthesize and release the thyroid hormones T3 and T4. FSH targets the ovaries and the testes where it enables the maturation of the ovum and of spermatogenesis. LHRH also targets the ovaries and the testes, helping to promote ovulation and increase progesterone synthesis and release. GHRH targets the anterior pituitary to release growth hormone to most body tissues, increase protein synthesis, and increase blood glucose.

The hypothalamus also secretes other important hormones such as prolactin inhibiting hormone (PIH), prolactin releasing hormone (PRH), and melanocyte inhibiting hormone (MIH). PIH targets the anterior pituitary to inhibit milk production at the mammary gland, and PRH has the opposite effect. MIH targets skin pigment cells (melanocytes) to regulate pigmentation.

**Pituitary gland**

The pituitary has long been called the master gland because of the vast extent of its activity. It lies deep in the brain just behind the nose, and is divided into anterior and posterior regions. Both anti-diuretic hormone (ADH) and oxytocin are synthesized in the hypothalamus before moving to the posterior pituitary to secretion. ADH targets the collecting tubules of the kidneys, increasing their permeability to and retention of water. Lack of ADH leads to a condition called diabetes insipidus characterized by excessive urination. Oxytocin targets the uterus and the mammary glands in the breasts. Oxytocin also triggers labor contractions prior to birth and functions in the ejection of milk. The drug pitocin is a synthetic form of oxytocin and is used medically to induce labor.

The anterior pituitary (AP) secretes a number of hormones, including growth hormone (GH), ACTH, TSH, prolactin, LH, and FSH. GH controls cellular growth, protein synthesis, and elevation of blood glucose concentration. ACTH controls secretion of some hormones by the adrenal cortex (mainly cortisol). TSH controls thyroid hormone secretion in the thyroid. In males, prolactin enhances testosterone production; in females, it initiates and maintains LH to promote milk secretion from the mammary glands. In females, FSH initiates ovulation and induces ovarian estrogen secretion. In males, FSH stimulates sperm production in the testes. LH stimulates ovulation and formation of the corpus luteum, which produces progesterone in females, whereas LH stimulates interstitial cells in males to produce testosterone.

**Thyroid gland**

The thyroid lies under the larynx and synthesizes two hormones, thyroxine and tri-iodothyronine. This gland takes up iodine from the blood and has the highest iodine level in the body. The iodine is incorporated into the thyroid hormones. Thyroxine has four iodine atoms and is called T4. Tri-iodothyronine has three iodine atoms and is called T3. Both T3 and T4 function to increase the metabolic rate of several cells and tissues. The brain, testes, lungs, and spleen are not affected by thyroid hormones, however. T3 and T4 indirectly increase blood glucose levels as well as the insulin-promoted uptake of glucose by fat cells. Their release is modulated by TRH-RH from the hypothalamus. When temperature drops, a metabolic increase is triggered by TSH. Chronic stress seems to reduce TSH secretion which, in turn, decreases T3 and T4 output.

Depressed T3 and T4 production is the trademark of hypothyroidism. If it occurs in young children, this decreased activity can cause physical and mental retardation. In adults, it creates sluggishness—mentally and physically—and is characterized further by weight gain, poor hair growth, and a swollen neck. Excessive T3 and T4 cause sweating, nervousness, weight loss, and fatigue. The thyroid also secretes calcitonin, which serves to reduce blood calcium levels. Calcitonin’s role is particularly significant in children whose bones are still forming.

**Parathyroid glands**

The parathyroid glands are attached to the bottom of the thyroid gland. They secrete the polypeptide parathyroid hormone (PTH), which plays a crucial role in monitoring blood calcium and phosphate levels. Calcium is a critical element for the human body. Even though the majority of calcium is in bone, it is also used by muscles, including cardiac muscle, for contractions, and by nerves...