DOWNLOAD PDF DISORDERS OF THE HYPOTHALAMUS PITUITARY GLAND

Chapter 1 : Hypopituitarism - Symptoms and causes - Mayo Clinic

Hypothalamic dysfunction is a problem with part of the brain called the hypothalamus. The hypothalamus helps control the pituitary gland and regulates many body functions. The hypothalamus helps control the pituitary gland and regulates many body functions.

Impotence Disturbances in menstrual cycle In case, the pituitary gland is reeling under the pressure of enlarged craniopharyngioma, hormonal production takes a backseat. The pituitary hormones carry out a wide range of functions and so their absence can lead to a wide range of health problems such as irregular menstruation and dry skin. This can lead to overall weakness and the person may experience a feeling similar to vertigo. Altered Body Temperature Another important task assigned to hypothalamus is to control the body temperature. However, with the onset of hypothalamus dysfunction, regulating body temperature is no longer possible. Fluctuations in normal body temperature is pointing towards malfunctioning of the hypothalamus. Diabetes Insipidus Diabetes insipidus has also been associated with hypothalamus dysfunction. In this condition, the urine output is substantially high and does not decrease despite reducing water consumption. In such circumstances, it becomes difficult to maintain body water content. Other infrequent symptoms observed in people diagnosed with hypothalamus disorders are inability to control the process of urinating, excessive thirst, obesity and emotional disturbance. These symptoms are less common and the ones that are commonly associated with hypothalamus disorders are hypothyroidism problems. Hypopituitarism As aforementioned, hypothalamus is primarily involved in regulating pituitary gland function. So, in the presence of hypothalamic disorders, one cannot expect the pituitary gland to work properly. The pituitary gland produces a number of hormones that help to maintain overall well-being. Hypopituitarism leads to deficiency of one or more pituitary hormones, which is a cause for concern. Depending upon which hormone is not being produced in normal amounts, hypopituitarism can lead to the following: Trouble Maintaining Water Balance: The kidneys filter blood to remove excess fluid in the form of urine. This is how our body regulates its water content with the help of kidneys. However, lack of antidiuretic hormone that controls kidney function can make it quite difficult to maintain water levels in the body. Healthy blood pressure is maintained by the adrenal glands that lie above the kidneys. The adrenocorticotropic hormone ACTH is involved in stimulating the adrenal glands, which release certain hormones to control blood pressure. However, ACTH deficiency diagnosed in hypopituitarism can cause adrenal dysfunction, leading to decrease in blood pressure. People who have short stature less than 5 feet may be actually suffering from growth hormone GH deficiency. GH helps children to grow taller, hence low levels of growth hormone can lead to short stature. Women may not be able to give birth, if they are found to be deficient in luteinizing and follicle stimulating hormone. Excess Secretion of Milk: The pituitary gland releases prolactin, a hormone that regulates milk production in women after delivery. However, with the onset of hypothalamic dysfunction, the pituitary gland may secrete abnormally high amount of prolactin. The rise in prolactin levels may cause women to produce breast milk before getting pregnant. Too much secretion of prolactin in men can lead to erectile dysfunction and women may be unable to conceive. Inadequate Secretion of Milk: Hypothalamic diseases can also lower production of prolactin. Low levels of prolactin can lead to inadequate secretion of milk in women. So, women may find it difficult to breastfeed after childbirth. In other words, lack of prolactin, can cause inability to induce lactation. Diagnostic Tests MRI or CT scan that gives an inside view of the brain is beneficial to look out for craniopharyngioma. Apart from scanning to detect tumors, the doctor may recommend tests to evaluate pituitary function. These tests determine the amount of hormones produced by the pituitary gland. Depending upon the results, the doctor will get a clear idea about the way the pituitary gland is working. Treatment Treatment involves correcting the underlying cause to restore normal hypothalamic function. If tumor is the culprit behind malfunctioning of the hypothalamus, then surgery may be performed to remove unwanted growth. In some cases, complete removal of tumors becomes difficult as there is a possibility of damage to the nearby tissues

and the pituitary gland. To avoid such complications, radiation therapy is used to destroy the abnormal growth that cannot be removed through surgery. Having a well-balanced diet is the easiest way to overcome malnourishment, which will in turn help to reduce symptoms of hypothalamic disease. As far as treating hypopituitarism is concerned, doctors may prescribe a particular hormone replacement drug to correct the hormone deficiency. For instance, corticosteroids are usually recommended to treat ACTH deficiency. These medications will have to be taken lifelong, if the person does not recover from hypothalamic disease. The information provided in this article is solely for educating the reader. It is not intended to be a substitute for the advice of a medical expert.

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Chapter 2 : Pituitary Disorders | MedlinePlus

Continued Hypopituitary Causes. A loss of function of the pituitary gland or hypothalamus results in low or absent hormones. Tumors can cause damage to the pituitary gland or hypothalamus and can.

Further more detailed information available free online What is the pituitary gland? The pituitary gland is located in the brain and is an endocrine gland. This means that it produces chemicals called hormones. Hormones are chemical messengers which help different organs in the body communicate with each other. The pituitary gland is one part of a messenger system. These hormones are transported in your blood to their target. Here they usually cause the release of a second hormone. The target can either be specialised endocrine glands or other types of body tissue such as groups of cells. The pituitary gland is sometimes called the master gland because it controls several other hormone-releasing glands. Some of the glands the pituitary gland controls are the thyroid gland, the ovaries, the testicles testes and the adrenal glands. Where is the pituitary gland found? About the size of a pea, the pituitary gland is found at the base of the brain, behind the bridge of your nose. The pituitary gland is very close to another part of the brain, called the hypothalamus. The pituitary gland has two main parts: The part of the pituitary gland at the front, called the anterior pituitary. The part of the pituitary gland at the back, called the posterior pituitary. These two parts release different hormones which are aimed at different parts of the body. There is also a section between the two main parts, called the intermediate part, which releases a single hormone. The final part of the pituitary gland is the stalk, which connects the posterior pituitary to the hypothalamus. How does the pituitary gland work? Your body is in a constant state of change. Your heart rate, blood pressure and body temperature all change in response to what you do and your surroundings. Your body has systems that constantly monitor these and other vital functions. Not only must these systems monitor changes, they must also respond to the changes and help the body to restore balance.

Chapter 3 : 6 Natural Ways to Boost Hypothalamus Function - Dr. Axe

The pituitary gland is the partner of the hypothalamus on the body side of the mind-body interface. Once viewed as the "master gland" in regulation of neuroendocrine systems, the pituitary is now known to be a "middle manager" responding to input from both the brain (via the hypothalamus) and the body (via the various peripheral.

Apples Bananas You may want to consider supplementing with chromium, but the benefits of taking chromium supplements are still somewhat controversial and questioned by some medical experts since studies to date show mixed results. Both of these compounds have anti-inflammatory and antioxidant effects on the body. Sesquiterpenes also specifically have an effect on our emotional center in the hypothalamus, helping us remain calm and balanced. There are many ways to incorporate frankincense and myrrh into your daily life. You can diffuse the essential oils, inhale them straight from the bottle, or you can mix them with a carrier oil like jojoba and apply the mixture directly to the skin. The medicinal ability of chasteberry to positively affect hormonal health issues appears to be derived from dopaminergic compounds present in the herb. How exactly does vitex encourage hormonal balance? For women, it increases luteinizing hormone, modulates prolactin and aids in the inhibition of the release of follicle-stimulating hormone, which all help balance out the ratio of progesterone to estrogen, slightly raising the levels of progesterone. Vitex or chasteberry is available in many different forms in your local health store or online. The dried, ripe chasteberry is used to prepare liquid extracts or solid extracts that are put into capsules and tablets. You can also easily find vitex in tea form on its own or combined with other herbs that promote hormonal balance. You can also order the dried berries and make your own tincture at home. Eat Healthy Fats In addition to vitex, there are many other natural ways to balance your hormones and achieve better hypothalamus function. Establishing hormonal balance in your body has a direct positive effect on the function of your hypothalamus as well as your pituitary gland. One of the best ways to balance your hormones through your diet is to regularly consume healthy fats. Cholesterol and other fats play a fundamental part in building cellular membranes and hormones. Certain kinds of fats, including cholesterol, also act like antioxidants and precursors to some important brain-supporting molecules and neurotransmitters. Some of my favorite sources of anti-inflammatory, healthy fats include olive oil, coconut oil, avocados, grass-fed butter and wild-caught salmon. A study published in looked at the relationship between the hypothalamus, exercise and high blood pressure in animal subjects. The hypothalamus coordinates activity of the autonomic nervous system and also plays a significant role in the function of the endocrine system due to its complex relationship with the pituitary gland. The hypothalamus contains specialized nuclei designed to do specific work, such as maintaining many basic physiological functions, including body temperature, blood pressure, fluid and electrolyte balance , and the regulation of digestion. If all that sounds too medical or scientific, I can give you a more simple hypothalamus definition: How exactly does the hypothalamus function in our bodies? Other vital hormones produced in the hypothalamus include corticotropin-releasing hormone, dopamine , growth hormone-releasing hormone, somatostatin , gonadotropin-releasing hormone and thyrotropin-releasing hormone. The primary hormones that are produced by the thyroid are called T4 and T3. Their production depends on the hypothalamus accurately sensing the need for more thyroid hormone in the bloodstream and signaling the pituitary gland to then release more.

Chapter 4 : Hypothalamus - Wikipedia

The hypothalamus is highly involved in pituitary gland function. When it receives a signal from the nervous system, the hypothalamus secretes substances known as neurohormones that start and stop the secretion of pituitary hormones.

Glucagon-like peptide 1 The extreme lateral part of the ventromedial nucleus of the hypothalamus is responsible for the control of food intake. Stimulation of this area causes increased food intake. Bilateral lesion of this area causes complete cessation of food intake. Medial parts of the nucleus have a controlling effect on the lateral part. Bilateral lesion of the medial part of the ventromedial nucleus causes hyperphagia and obesity of the animal. Further lesion of the lateral part of the ventromedial nucleus in the same animal produces complete cessation of food intake. There are different hypotheses related to this regulation: This hypothesis holds that adipose tissue produces a humoral signal that is proportionate to the amount of fat and acts on the hypothalamus to decrease food intake and increase energy output. It has been evident that a hormone leptin acts on the hypothalamus to decrease food intake and increase energy output. The food entering the gastrointestinal tract triggers the release of these hormones, which act on the brain to produce satiety. The activity of the satiety center in the ventromedial nuclei is probably governed by the glucose utilization in the neurons. It has been postulated that when their glucose utilization is low and consequently when the arteriovenous blood glucose difference across them is low, the activity across the neurons decrease. Under these conditions, the activity of the feeding center is unchecked and the individual feels hungry. Food intake is rapidly increased by intraventricular administration of 2-deoxyglucose therefore decreasing glucose utilization in cells. According to this hypothesis, a decrease in body temperature below a given set-point stimulates appetite, whereas an increase above the set-point inhibits appetite. Fear processing[edit] The medial zone of hypothalamus is part of a circuitry that controls motivated behaviors, like defensive behaviors. Fos-labeled cell analysis showed that the PMDvl is the most activated structure in the hypothalamus, and inactivation with muscimol prior to exposure to the context abolishes the defensive behavior. Social defeat Likewise, the hypothalamus has a role in social defeat: Nuclei in medial zone are also mobilized during an encounter with an aggressive conspecific. The defeated animal has an increase in Fos levels in sexually dimorphic structures, such as the medial pre-optic nucleus, the ventrolateral part of ventromedial nucleus, and the ventral premammilary nucleus. Moreover, the premammillary nucleus also is mobilized, the dorsomedial part but not the ventrolateral part. Swaab , writing in a July paper, "Neurobiological research related to sexual orientation in humans is only just gathering momentum, but the evidence already shows that humans have a vast array of brain differences, not only in relation to gender, but also in relation to sexual orientation. In , Swaab and Hofman [38] reported that the suprachiasmatic nucleus in homosexual men was significantly larger than in heterosexual men. Then in , Swaab et al. This produced an enlarged SCN and bisexual behavior in the adult male rats. In , LeVay showed that part of the sexually dimorphic nucleus SDN known as the 3rd interstitial nucleus of the anterior hypothalamus INAH 3 , is nearly twice as large in terms of volume in heterosexual men than in homosexual men and heterosexual women. However, a study in has shown that the sexually dimorph nucleus of the preoptic area, which include the INAH3, are of similar size in homosexual males who died of AIDS to heterosexual males, and therefore larger than female. This clearly contradicts the hypothesis that homosexual males have a female hypothalamus. Furthermore, the SCN of homosexual males is extremely large both the volume and the number of neurons are twice as many as in heterosexual males. These areas of the hypothalamus have not yet been explored in homosexual females nor bisexual males nor females. These studies showed that the hypothalamus of heterosexual men and homosexual women both respond to estrogen. Also, the hypothalamus of homosexual men and heterosexual women both respond to testosterone. The hypothalamus of all four groups did not respond to the common odors, which produced a normal olfactory response in the brain. Human brain left dissected midsagittal view Location of the hypothalamus.

Chapter 5 : Pituitary tumors - Symptoms and causes - Mayo Clinic

Pituitary apoplexy is a disease of sudden pituitary gland impairment of vascular supply leading to the development of headaches, blurring of vision, and altered mental status. This is a vascular accident that may arise from acute hemorrhage or infarction of the gland.

See Article History Alternative Titles: Anatomy of the pituitary gland The pituitary gland lies at the middle of the base of the skull and is housed within a bony structure called the sella turcica, which is behind the nose and immediately beneath the hypothalamus. The pituitary gland is attached to the hypothalamus by a stalk composed of neuronal axons and the so-called hypophyseal-portal veins. Its weight in normal adult humans ranges from about to mg 0. Medial view of the left hemisphere of the human brain. In most species the pituitary gland is divided into three lobes: In humans the intermediate lobe does not exist as a distinct anatomic structure but rather remains only as cells dispersed within the anterior lobe. Nonetheless, the anterior and posterior lobes of the pituitary are functionally, anatomically, and embryologically distinct. Whereas the anterior pituitary contains abundant hormone-secreting epithelial cells, the posterior pituitary is composed largely of unmyelinated lacking a sheath of fatty insulation secretory neurons. Although the cells appear to be relatively homogeneous under a light microscope, there are in fact at least five different types of cells, each of which secretes a different hormone or hormones. The thyrotrophs synthesize and secrete thyrotropin thyroid-stimulating hormone; TSH ; the gonadotrophs , both luteinizing hormone LH and follicle-stimulating hormone FSH ; the corticotrophs, adrenocorticotropic hormone ACTH; corticotropin ; the somatotrophs, growth hormone GH; somatotropin ; and the lactotrophs, prolactin. Gonadotroph cells indicated by arrows constitute about 10 percent of the pituitary gland and secrete hormones called gonadotropins, which include luteinizing hormone LH and follicle-stimulating hormone FSH. They are located predominantly in the anterior and the lateral regions of the gland and secrete between one and two milligrams of GH each day. Structure and function of anterior pituitary hormones The hormones of the anterior pituitary are proteins that consist of one or two long polypeptide chains. Each of those hormones is composed of two glycopeptide chains, one of which, the alpha chain, is identical in all three hormones. As is the case for all protein hormones, the hormones of the anterior pituitary are synthesized in the cytoplasm of the cells as large inactive molecules called prohormones. Those prohormones are stored in granules, within which they are cleaved into active hormones and are secreted into the circulation. Each pituitary hormone plays a vital role in endocrine function. Thyrotropin stimulates the production of thyroid hormone. ACTH stimulates the production of cortisol and androgenic hormones by the adrenal cortex. FSH stimulates the production of estrogens and the growth of egg cells oocytes in the ovaries in women and sperm cells in the testes in men. LH stimulates the production of estrogens and progesterone by the ovaries in women and the production of testosterone by the testes in men. GH stimulates linear growth in children and helps to maintain bone and other tissues in adults. Prolactin stimulates milk production. The pituitary gland secretes multiple hormones, including melanocyte-stimulating hormone MSH, or intermedin , adrenocorticotropic hormone ACTH , and thyrotropin thyroid-stimulating hormone, or TSH. Regulation of anterior pituitary hormones The production and secretion of each of the major anterior pituitary hormones are regulated by peptides that are released from the median eminence neurons of the hypothalamus into the hypophyseal-portal veins, which traverse a short distance to the pituitary microvasculature. Among those peptides are thyrotropin-releasing hormone TRH , corticotropin-releasing hormone , gonadotropin-releasing hormone , and growth-hormone-releasing hormone. The hypothalamus also produces dopamine and somatostatin , which are potent inhibitors of prolactin and GH, respectively. Feedback loops involving the pituitary hormones and their target glands play an important role in pituitary-hormone signaling. TRH secretion, for example, is inhibited by thyroid hormone, which also inhibits the effect of TRH on thyrotrophs. Such negative feedback loops help to maintain a stable balance between the secretion of pituitary hormones and the secretion of hormones produced by pituitary target glands. Physiological

perturbations, such as the effects of stress on the pituitary-adrenal axis and neuroendocrine rhythms, can override that balance. Posterior pituitary hormones The posterior lobe of the pituitary gland consists largely of extensions of processes axons from two pairs of large clusters of nerve cell bodies nuclei in the hypothalamus. One of those nuclei, known as the supraoptic nuclei, lies immediately above the optic tract, while the other nuclei, known as the paraventricular nuclei, lies on each side of the third ventricle of the brain. Those nuclei, the axons of the cell bodies of nerves that form the nuclei, and the nerve endings in the posterior pituitary gland form the neurohypophyseal system. There are neural connections that run from those nuclei to other regions of the brain, including to regions that sense osmolality solute concentrations and regulate thirst. The major neurohypophyseal hormones are vasopressin antidiuretic hormone and oxytocin , which are synthesized and incorporated into neurosecretory granules in the cell bodies of the nuclei. Those hormones are synthesized as part of a precursor protein that includes one of the hormones and a protein called neurophysin. After synthesis and incorporation into neurosecretory granules, the precursor protein is cleaved, forming separate hormone and neurophysin molecules, which remain loosely attached to one another. Those granules are carried through the axons and are stored in the posterior lobe of the pituitary gland. Upon stimulation of the nerve cells by internal or external events e. The hormones are released into the circulation in response to nerve signals that originate in the hypothalamus and are transmitted to the posterior pituitary lobe. Oxytocin stimulates contraction of the uterus , an important aspect of labour and parturition and of milk ejection during breast-feeding. Vasopressin raises blood pressure and increases reabsorption of water from the kidneys, thus conserving body water and defending against dehydration. Vasopressin secretion is stimulated by decreased serum osmolality, which is an indication of dehydration. Diseases of the anterior and posterior pituitary Decreased secretion of anterior and posterior pituitary hormones is known as panhypopituitarism , a serious and sometimes fatal disorder. The term panhypopituitarism is also commonly used when only anterior pituitary hormones are deficient. Patients with panhypopituitarism usually have features of adrenal insufficiency, hypothyroidism , and gonadal failure, along with poor responses to stress. Pituitary vascular insufficiency, autoimmunity , infections, and neoplasms can cause panhypopituitarism. If central diabetes insipidus is present, the lesion generally involves the posterior as well as the anterior pituitary. Isolated deficiencies of one or two pituitary hormones also may occur, often on a heritable basis. Those conditions are rare. Proportionate congenital growth failure due to GH deficiency is a predominant type of isolated deficiency. Tumours that secrete individual anterior pituitary hormones are recognized see pituitary tumour. Acromegaly due to GH-secreting tumours and Cushing syndrome due to ACTH-producing tumours are among the most-common disorders produced by functional pituitary tumours, though even those conditions are rare. Autonomous hypersecretion of prolactin is a common feature of pituitary tumours, since such growths tend to interfere via tissue compression with prolactin-suppressing signals from the hypothalamus. Excess prolactin typically is associated with varying degrees of gonadal failure and in some cases with spontaneous breast-milk secretion galactorrhea in men and women. Posterior pituitary tumours that secrete excess vasopressin or oxytocin do not occur; however, functional states of excess vasopressin inappropriate vasopressin secretion and transient vasopressin deficiency have been described.

Chapter 6 : An Overview of the Hypothalamus - The Endocrine Systemâ€™s Link to the Nervous System

The pituitary controls the function of most other endocrine glands and is therefore sometimes called the master gland. In turn, the pituitary is controlled in large part by the hypothalamus, a region of the brain that lies just above the pituitary.

In children, X-ray of the hands is done to see if the bones are growing at an abnormal rate. The drugs that treat hypopituitarism are Glucocorticosteroids, Thyroid hormone replacement therapy and surgery to remove the tumor. Diabetes Insipidus DI - a Pituitary Gland Disorder It is a rare medical condition that leads to excessive thirst and frequent urination. It is not related to Type 1 or type 2 diabetes. The symptoms of this pituitary gland disorder diabetes insipidus are nausea, headache , seizures, confusion and in rare cases, death. Other complications of diabetes insipidus as a pituitary gland disorder are low blood pressure, dehydration and high sodium levels in the blood. There are four kinds of diabetes insipidus. The treatments depend on the type of Diabetes Insipidus and the cause. The pituitary gland is damaged due to injury, tumor or surgery. It is treated with synthetic antidiuretic hormone: The pituitary gland releases Antidiuretic Hormone into the body, but the kidneys do not respond to it. This is treated by anti-inflammatory medicine. Too much intake of fluid caused due to a problem with thirst mechanism or because of drinking too many fluids. This leads to low sodium in the blood and brain damage. There is no treatment except a restriction in fluid intake. This treatment is a pill or a nasal spray. Hyperprolactinemia- a Pituitary Gland Disorder When the levels of prolactin in the blood are higher than the normal levels, it is called Hyperprolactinemia. The common cause of hyperprolactinemia is the growth of a tumor on the pituitary gland, resulting in high levels of production of prolactin. The tumors can be either small or large, but are not cancerous. It is more common in women than men. The symptoms are decreased sex drive, infertility in both men and women, and bone loss. Additionally, women can have vaginal dryness, irregular periods and production of breast milk even when not nursing or pregnant. A normal blood test can detect too much prolactin. If the levels are too high, more tests can check the blood levels of the thyroid hormone. MRI of the brain and pituitary gland is done if prolactinoma is suspected. Treatment is established on the cause. There are people who have high levels of prolactin, but with no or few signs or symptoms and generally do not require any treatment. The treatment, if required, includes the following: Prescription medicines like Bromocriptine and cabergoline work well for most patients. Surgery is used to remove a tumor if medications do not prove to be effective. Radiation is used, if both medications and surgery are not fruitful. Pituitary Tumors as a Pituitary Gland Disorder The abnormal growths found in the pituitary gland are called the pituitary tumors. The tumors are benign, but may cause hormonal imbalances and may interfere with the normal functioning of the pituitary gland. The causes of pituitary tumors are the hormonal changes or tumor mass. The symptoms depend on the cause and they vary from one person to another. Symptoms of tumor mass pressure are headaches and trouble in seeing. Other symptoms are dry skin, dizziness, fatigue, sexual dysfunction in men, and irregular periods in women. The doctor can order for a blood test to detect the hormone levels. Further, MRI scan needs to be done too to look at the pituitary gland. If the tumor is found, other blood tests needs to be done to find out the type of tumor. Treatment for this pituitary gland disorder depends on the size and the type of tumor. Some are treated with medications alone while some may require surgery or a combination of treatments which includes radiation therapy. Traumatic Brain Injury Traumatic Brain injury or TBI occurs when the head gets hit repeatedly or the head hits something violently, causing abrupt damage to the brain. The causes include motor vehicle accidents, falls, domestic violence like beating, child abuse, gunshot wounds, or injuries in sports and explosions. The symptoms are fatigue, weight loss, vomiting, convulsions, low blood pressure, dehydration , breast enlargement, muscle loss, loss of body hair, and sexual dysfunction in men. The doctor will ask for blood tests to check the hormone levels and may do an MRI of the pituitary gland to check for tumors and cysts. Often, the doctors go for hormone therapy to replace the missing hormones. Other problems may require treatments like treating hyponatremia by reducing the fluid intake, getting an IV saline solution through the vein and

medications. Conclusion Out of every five individuals, one has an abnormal growth on the pituitary gland, which causes health complications. If it is left untreated and undiagnosed, the pituitary gland disorder can impair the normal functioning of hormone and it can reduce the lifespan. Therefore, the proper diagnosis and treatment can cure a patient completely of the pituitary gland disorders.

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Chapter 7 : Hypothalamic Disorders

Illustration of the 2 lobes of the pituitary gland posterior (A) and anterior (B) and the hormones they release in response to the hormones produced by the hypothalamus. The hormone targets and their effects also are listed.

The hypothalamus is the link between the endocrine and nervous systems. The hypothalamus produces releasing and inhibiting hormones, which stop and start the production of other hormones throughout the body. The hypothalamus plays a significant role in the endocrine system. Heart rate and blood pressure Body temperature Fluid and electrolyte balance, including thirst Appetite and body weight Glandular secretions of the stomach and intestines Production of substances that influence the pituitary gland to release hormones Sleep cycles The hypothalamus is involved in many functions of the autonomic nervous system, as it receives information from nearly all parts of the nervous system. As such, it is considered the link between the nervous system and the endocrine system. You can learn more by reading a SpineUniverse article about the nervous system. Anatomy of the Hypothalamus The hypothalamus is located below the thalamus a part of the brain that relays sensory information and above the pituitary gland and brain stem. It is about the size of an almond. Hormones of the Hypothalamus The hypothalamus is highly involved in pituitary gland function. When it receives a signal from the nervous system, the hypothalamus secretes substances known as neurohormones that start and stop the secretion of pituitary hormones. Primary hormones secreted by the hypothalamus include: This hormone increases water absorption into the blood by the kidneys. CRH sends a message to the anterior pituitary gland to stimulate the adrenal glands to release corticosteroids, which help regulate metabolism and immune response. GnRH stimulates the anterior pituitary to release follicle stimulating hormone FSH and luteinizing hormone LH , which work together to ensure normal functioning of the ovaries and testes. In children, GH is essential to maintaining a healthy body composition. In adults, it aids healthy bone and muscle mass and affects fat distribution. Oxytocin is involved in a variety of processes, such as orgasm, the ability to trust, body temperature, sleep cycles, and the release of breast milk. PRH prompts the anterior pituitary to stimulate breast milk production through the production of prolactin. Conversely, PIH inhibits prolactin, and thereby, milk production. Thyrotropin releasing hormone TRH: TRH triggers the release of thyroid stimulating hormone TSH , which stimulates release of thyroid hormones, which regulate metabolism, energy, and growth and development. Hypothalamic Disease A disease or disorder of the hypothalamus is known as a hypothalamic disease. A physical injury to the head that impacts the hypothalamus is one of the most common causes of hypothalamic disease. Hypothalamic diseases can include appetite and sleep disorders, but because the hypothalamus affects so many different parts of the endocrine system , it can be hard to pinpoint whether the root cause of the disorder is actually related to another gland. These are known as hypothalamic-pituitary disorders. However, there are hormone tests that help shed light on which part of the body is the root cause. The hypothalamus is arguably the most essential of the endocrine system. By alerting the pituitary gland to release certain hormones to the rest of the endocrine system, the hypothalamus ensures that the internal processes of your body are balanced and working as they should.

Chapter 8 : pituitary gland | Definition, Anatomy, Hormones, & Disorders | theinnatdunvilla.com

The pituitary gland, also called the "master gland," controls and regulates numerous other endocrine glands located throughout the body. This small gland is located in the center of the brain. A pituitary gland disorder can affect multiple body systems.

Chapter 9 : Pituitary Gland Disorders | Signs, Symptoms, Treatment | Patient

Diseases of the hypothalamus, a portion of the brain situated just above the pituitary, also can cause hypopituitarism.

DOWNLOAD PDF DISORDERS OF THE HYPOTHALAMUS PITUITARY GLAND

The hypothalamus produces hormones of its own that directly affect the activity of the pituitary.