

Adrenal Glands

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Principal Reference: Glands Regulating Personality by Berman.

Other References: How we Become Personalities by Williams.

Human Body by Martin; Character Reading by Fosbroke.

Gray's Human Anatomy by Lewis.

GLANDS IN GENERAL

One gland does not act separately. Each influences the other in a communicating chain. Let one be disturbed, and all others will feel the impact and vibrate with it.

Any break in the somatic or psychic equilibrium, a blow or an infection or a startling thing seen or a worrisome thought felt, will start a process going. This will only wind up when every gland has been somehow touched and a final equilibrium reestablished. The thyroid, maybe, was first excited, and then in turn the adrenals with a boomerang reinforcing effect upon the thyroid, and at the same time a stimulating effect upon the pituitary. Each gland is thus influenced by the influencing agent and reagent in the complex adjustments of the organism.

The body-mind is a corporation with the glands of internal secretions as director.

There are antagonisms and cooperations in a check or sympathetic system and drive or parasympathetic system.

There are three factors in the check and drive systems:

1. The amount of the circulating internal secretions;
2. The organic and functional integrity of the nerve filaments;
3. The number and vitality and limitations of the terminal receiving cells acted upon by internal secretions.

Internal secretion traits are inherited. Given the internal secretory composition of an individual - his endocrine formula and his intravisceral pressures - one skilled in endocrinology may predict within limits his physical and psychic make-up, the general lines of his life, diseases, tastes, idiosyncrasies, and habits.

Within limits if previous history of an individual is known, his physical appearance may be approximately described and his future outlined. Conversely, given physical and psychic composition of an individual and his past history, one may be able to deduce the internal secretion type to which he belongs.

THE ADRENALS

Like the pituitary, each adrenal or suprarenal is a double gland, consisting of two distinct portions united together, one might say, by the accident of birth. Each gland is composite, or duplex. In some fishes the parts of the gland are apart and independent.

All vertebrates possess adrenal glands. In invertebrates the brain and adrenal gland have evolved from small nerve ganglia.

The development of the master tissues of the body and the brain are in some subtle way correlated with the adrenal cortex. It contains more of the phosphorus-containing substances of the general nature of those found in the central nervous system than any other gland of non-nervous tissue.

During human intrauterine life, the adrenals are large and conspicuous in the first half of the second month, being twice as large as the kidneys. Most of this enlargement is that of the cortex.

If this enlargement does not take place, the brain does not develop properly or may be entirely absent.

Death follows quickly after the removal of the adrenals.

ORIGIN:

1. In the embryo, the cortex, or outer part of the gland, is derived from the same patch of cells that gives rise to the sex organs, described as germinal epithelium.
2. The medulla contains numerous cells belonging ~~xxx~~ to the vegetative (or sympathetic) nervous system; but the greater part is composed of large granular cells which stain a distinct yellowish-brown when the gland is fixed in a solution of bi-chromate of potash or any chromium salt, and are therefore labelled chromaffin cells. Cells along the sympathetic nervous system give the same chromaffin reaction and contain adrenalin.

LOCATION AND DESCRIPTION:

The adrenals are situated at the back part of the abdomen, behind the peritoneum and immediately above and in front of the upper end of each kidney, adrenal meaning near the kidney. They are small flattened bodies of a yellowish fatty color. The right one is somewhat triangular in shape, bearing a resemblance to a cocked hat; the left one is more like a half moon and usually larger and placed at a higher level than the right. They vary in size in individuals, sometimes are so small as to be scarcely detected. Their usual size is from 3 to 5 centimeters in length, slightly less in width, and 4 to 6 millimeters in thickness.

Their weight is 1.5 to 6 grams or 1/16 to 1/4 ounce each.

Three different layers of cells that interpenetrate to form a network directly bathed by blood that breaks in upon them from open blood vessels compose the cortex. The cortex has its own secretion called cortin.

The size of the cortex varies directly with the sexuality and pugnacity of the animal. Charging, fighting animals have a wide cortex. Timid, fleeing animals - the rabbit for example - have a narrow strip of cortex. Wild animals have larger cortices than domesticated; humans have larger ones than any animal.

SECRECTIONS:

An extract of the adrenals containing the internal secretion of the cortex, called interrenalin or cortin, will prolong the life of animals deprived of their adrenals, although such animals are not affected by adrenalin. Removal of the cortex greatly influences the blood chemistry, notably the content of chloride, acid soluble phosphorus, and acid ions. The cortex has another secretion, called cardaissin.

The secretion of the medulla is called adrenalin (epinephrin), and it is present in the gland in direct proportion to the number of chromaffin cells. The poisonous skin glands of the toad contain a large amount of adrenalin and have a marked chromaffin reaction. Adrenalin injected into a vein causes a marked temporary rise in blood pressure. There is adrenalin present in the blood to the amount of one part in 80,000,000 and about 100,000 times as much stored in the gland as reserve.

In infections, intoxications, muscular exertions, and profound emotions there is a decreased amount in the gland and increase in the blood.

Adrenalin can be made synthetically that is identical with that isolated from an impure adrenalin extract.

AGENCY:

The cortex is the gland of combat (courage), brain growth, tone development of sex glands, and chemistry of acid regulation.

The medulla is the gland of defense (fear), energy for an energy situation.

Pain and excitement and especially fear and rage will cause a discharge of adrenalin from the medulla into the blood, producing a tremendous heightening of the tone, a tensing of the nervous system. The nerve cells are more sensitive to stimuli; more sugar is poured into the blood from the liver; and more red corpuscles are squeezed into circulation from the blood lakes of the liver and spleen. A good deal of blood is withdrawn from the viscera and hurried to the skeletal muscles and the brain. The heart beats more strongly, the eyes see more clearly, the ears hear more distinctly, and the breathing is more rapid. The temperature rises; the hair of the head and body becomes erect, making the size of the animal appear larger to intimidate an enemy. The skin gets moist and greasy. Adrenalin will help a fatigued muscle to regain its tone. It has a reinforcing action upon the nutritive properties of the blood and activity of the brain and vegetative or sympathetic nerves.

Inhibitions, education, and conditions of modern living, improper food, sedentary

indoor confinement and universal rack and noise have made greater and greater demands on the adrenals. Chemical quantitative studies show that by repeated stimulation the adrenals may be exhausted of their reserve supply of secretion, which returns insufficiently if not enough time is given for their recuperation. In persons so afflicted there appears a fatigue, a sensitiveness to cold, cold hands and feet (which are sometimes mottled bluish-red), loss of appetite and zest in life, mental instability characterized by indecision and tendency to worry, a weepishness on slight provocation.

A certain number of temporary breakdowns or nervous prostrations, which are more common each year, sometimes may be traced to such deficiency of response to the needs of every day conflict by the adrenals. In some, mental and physical elasticity are totally lost. Even the slight exertion in either the mental or physical field often causes so much weariness and exhaustion as to be prohibited. Depression and even melancholia are associated with fear of not being able to accomplish work hitherto easy and enjoyed. This frame of mind arouses thoughts of suicide.

One of the outstanding effects of diseases of the adrenals is the feeling of muscular and mental inefficiency. A good number of observations conspire for the idea that a certain number of neurasthenics are suffering from insufficiency of the adrenal glands.

Neurasthenia is a general disturbance of body and mind. The sufferer cannot sleep when he lies down, can't keep awake when he is up, cannot concentrate, is constantly worried about life, goes off the handle at the slightest irritant. Irregular blotches may appear on the face or neck, feet and hands become damp and perspiring, face flushed or pallid.

The chronic state of the acute phenomenon known as nervous breakdown really represents in them a breakdown of the reserves of the adrenals and elimination of their factor of safety. The great American disease "Dementia Americana" is seen to be an adrenal disease - the American life - the adrenal life, often making too great demands upon that life and so breaking down with it.

ASSOCIATES:

The cortex and prepituitary are mutually assistant in their influence upon the tone of the brain and sex cells.

The medulla and postpituitary are associates. The cortex and medulla and thyroid are associates acting as regulators. When the thyroid undersecretates or oversecretates, the adrenals also do the same. But they have opposite effects. In the stomach the adrenal extract intensifies the sympathetic system, and there is a lessening of the amount and acidity of the gastric juice. Thyroid increases the action of the parasympathetic system and there is an increase of the amount and acidity.

ANTAGONISTS:

Thyroid, pancreas, and pineal are antagonistic to both cortex and medulla.

Post pituitary is antagonistic to cortex.

Pre pituitary is antagonistic to medulla.

The adrenal cortex may be injured by freezing with an ethyl chloride spray. In 5 to 7 days there is a marked increase in metabolism and heat production. If the thyroid has been previously removed, there is no rise in temperature.

The thyroid augments acid and heat in cells; the adrenal cortex diminishes it. There is a regeneration of the thymus gland if the adrenal cortex is damaged or removed. There is a marked hypertrophy of the adrenal cortex and pancreas with the removal of the thymus.

The pineal is thought to act as a brake on the adrenal cortex.

The adrenals act as the accelerator in the control of sugar mobilization of sugar from the liver where it is stored as glycogen, or animal starch; the pancreas acts as a

brake and they are direct antagonists. Diabetes is a disturbance of the adrenal-pancreas balance assisted by events which produce adrenal overwork like great or prolonged emotion, or by strain of pain, effected by overeating, for example.

At puberty one must have atrophy and retrogression of thymus and pineal and minimum increase of activity of thyroid, adrenal, and pituitary, the adrenal medulla and post pituitary in females, and the adrenal cortex and anterior pituitary in males. This difference in biochemistry accounts for the contrast between the sexes in skin, hair, fat cartilage (voice), and bone changes.

Insufficient action of thyroid, pituitary and adrenal may cause atrophy of ovaries and uterus with abolition of genital function. If the sex glands themselves fail, in the forties usually, these three must readjust to the new development.

HYPERCHARACTERISTICS:

The hypercharacteristics of the cortex are anger, courage, contraction of muscles of attack, making for masculinity. Working with associate prepituitary (because pre-pituitary stimulates will-power), it makes for true courage, makes for mental efficiency. Makes toward masculinity in women and towards sexual perversions and inversions.

In certain types of middle-aged with a high blood pressure accompanied by a great capacity for work, it has been shown to be associated with hypertrophy of the cortex.

In woman there is a degree of masculinity, neutralizing more or less the specifically feminine influences of internal secretions of the ovary. Such women possess a vigor and energy above the normal and command responsible positions in society, not only among their own sex, but also among men. They are the ones who in the present overturn of traditional sex relationships, will become the professional politicians, bankers, captains of industry, and directors of affairs in general.

Hypercharacteristics of medulla are fear, paleness, trembling, quick breath, contracts muscles of flight, relaxes muscles of attack; makes for femininity, working with the cycles of ovary and irritating influence of thyroid, stimulates the medulla as well as the postpituitary, being anti-adrenal cortex. Makes toward femininity in men and toward sex perversions or inversions.

Hypocharacteristics of cortex are brain fog, lack of courage, mental inefficiency; makes for weaker sexual instincts in male.

Hypercharacteristics of medulla are tendency toward lack of fear and lack of physical stamina and endurance. Lowers feminine sex instincts and may allow cortex to predominate, causing a trend toward sexual instability.

The congenital adrenal deficient is a special problem. From birth the history is nervous or high-strung, continued trouble, difficulties and adventures in the feeding narrative. Even after the first year or two the nutrition chronicle is not satisfactory. Lack of appetite, lack of energy, lack of response to stimuli are its keynotes and the motifs of the later years of childhood.

Growth is a strain, a task to make grow and gain in weight. In school, if the teachers are duty obsessed or perhaps sadistic, the child endures the agonies of admonition, demotions, and punishments; and indifference may develop. If parents are ambitious, proud, or competitive, then woe betides the victim. With their nervous dispositions, the school and tutors are blamed, not the child. Many schools, systems, novelties, doctors, feds, fakirs, charlatans - in fact everything may be tried in search of an education. Education cults by dozens have sprouted and grown fat around the unfortunates.

The child defect of congenital adrenal inadequate is an insufficiently developed cortex, which means insufficiently developed brain and nervous system. Puberty may transform, but the general rule remains.

TYPES:

A. Physiognomy

1. Hyperadrenal

The hyperadrenal types are square-headed - broad and somewhat hairy face, often brunette complexion or generously freckled; bountiful growth of hair on hair areas, sometimes extending over cheek bones. There is a low hair line which makes the brow appear rather low. The nose is well formed, often contracted; the upper lip long and the lips greatly compressed and often contracted. In fact most muscles of the face and body are contracted and well defined. They are mannish boys or womanish girls.

2. Hypoadrenal

As children are below weight and height, they are boyish men and girlish women. Nervous dispositions - form of neurasthenia (be careful of your judgment of this type). The adrenal insufficient is built along the same lines as the adrenal adequates and may be taken for them, unless you get under the surface and find he is one of the most frequent varieties of neurasthenics.

B. Teeth

1. Hyperadrenal

In the hyperadrenal the teeth are well developed, with large, powerful, sharply pointed canines of reddish-brown color indicating well functioning adrenals to start with. The size of the canines appear to be an accurate measure of adrenal activity. No individual peculiarities of the teeth are accidental.

2. Hypoadrenal

Hypoadrenals have short, stumpy, dull canines.

Thyroid and adrenal balance determines the resistance to decay of the molars.

C. Hair

1. Hyperadrenal

Hyperadrenals have hairy chests in males, hairy backs in females. The hair is thick, coarse and dry, hair lines are low. Red hair is almost certainly the result of adrenal activity.

Where the thymus persists after puberty there is little growth of hair on the face. Where the pineal ceases activity before puberty there is a rapid development of hair. Thyroid deficiency in adults results in the hair falling out.

D. Skin

1. Hyperadrenals

Hyperadrenals have slightly to deeply pigmented skin and sometimes freckles. Freckles sometimes indicate permanent or transitory adrenal inadequacy in the past, antenatal or post natal. The skin is dry and harsh and upon stroking becomes red. However if there is a persistent thymus the skin will retain the bland quality of adolescence.

2. Hypoadrenals

Hypoadrenals have soft and moist skins which become white upon stroking. Darkening of the skin as a whole or in spots where it is normally white

indicates a dysfunction of the Adrenals. This is very marked in Addison's Disease in which the glands are destroyed and the patient dies unless given Adrenal extracts.

Skin color control is a function of the cortex of the adrenals. Cortin blunts the sensitiveness to light of the pigment cells of the skin. Degeneration of the medulla alone does not affect the color of the skin but if the cortex degenerates there is a darkening which may go on to a negroid bronzing. That means an increased sensitiveness to light of the pigment cells.

E. Eyes

1. Hyperadrenals

Hyperadrenals eyes are bright and emotional. Adrenalin dilates the pupil. When the check or sympathetic system is in control the pupil is dilated.

2. Hypoadrenals

Hypoadrenals eyes are dull and emotionless.

F. Fat Distribution.

G. Body Type

The Adrenal type lacking in thyroid activity will be small and lean build with chest low and poorly developed. The hips in the male are narrow, in the female broad. The body is muscular rather than fleshy. The bones are usually small.

To gain weight they often eat more than their systems can care for. If they would eat less and masticate their food well their digestion and assimilation would be better.

H. Sex Traits

1. Cortex

Hyper-development of the cortex causes masculinity in women and strong sex instincts in males.

Masculine precocity is not only brought about by premature over activity of the testes, but also by an early excess secretion of the cortex or pituitary or by too early involution of the pineal or thymus.

Disturbances such as tumors of the cortex which presumably cause a massive dose of secretion to be supplied to the blood, produce general developmental anomalies and irregularities and peculiar sex phenomena. If the disease is present in the fetus there evolves a pseudo hermaphroditism. If a female, the individual presents external habits and characteristics of the other sex. So that she is actually taken for a man although the primary sex organs are ovaries, often not discovered to be such, except when examined after operation or death. How close such an occurrence touches upon the problems of sex inversions and perversions comes at once to the attention.

If the process that involves the cortex, attacks it after birth, the symmetrical correspondence and harmony of primary sex organs and secondary sex characteristics are not affected. But there follows a curious hastening of the ripening of the body and mind summed up in the word, Puberty, a precocious puberty with startling effects. A little girl 3 or 4 will exhibit the growth and appearance of 14 years. A boy 6 or 7 may suddenly in a few weeks or months become a little man, robust, rather short and stocky, but mustached, with muscular strength and sexual powers of a man and thinking as a man. It at once suggests that maturation must be due to the pouring into the blood and the body fluids, of some substance which acts like yeast in a fermentable solution. The cortex is one source of maturity producing internal secretions.

If the trouble in the adrenals starts after puberty, phenomena of the same type but of different order, exhibit themselves. A woman say in her thirties becomes affected. Slowly or quickly her body will become covered by an abundant growth of hair, more or less of a beard and mustache on face, voice deep, muscles harden, shows capacity for hard physical labor, misses monthly periods, appears to be made over sexually, masculinity predominates. The French call this Virilism. Virilists have to be shaved regularly. The change in the spirituality makes them immune to the preoccupation of the feminine. The cause of such a transformation in a previously normal woman has been found to be a tumor of the cortex. When it is removed the woman becomes normal.

Hypo-development of the cortex results in weak sex instincts in men.

2. Medulla.

Hyperdevelopment of the medulla causes femininity in males and strong sex instincts in the female.

Hypo-activity of the medulla produces weak sex instincts in the female.

FILTERS:

To stimulate: Alpha Omega

To suppress: Mu