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 The
American College
of Orgonomy

The Plasmatic System (Part II): The Endocrine System

Charles Konia, M.D.

Editor's Note: *This article, originally published in 28(1), 1994, the second of two by Dr. Charles Konia, advances our understanding of the plasmatic system by including the endocrine system.* With a masterful use of functional thinking, Dr. Konia develops a groundbreaking functional understanding of the system that is central to the homeostasis of organisms. He shows how homeostasis involves the integration of antithetical functional pairs of hormone systems, thus taking our understanding of homeostasis out of the mechanistic approach of stimulus and feedback loops. Dr. Konia also further develops the functional energetic understanding of receptors as "perceptors," the somatic sites of perception. This concept, first described by him in relation to the immune system in the first of this pair of articles, has profound implications for a functional understanding of the endocrine system. [Peter A. Crist, M.D.]*

Classical neurology, through its mechanistic perspective, views the central nervous system (CNS), which includes the brain and spinal cord, as an organ that *controls* or directs the various organismic functions. In contrast, functionalism asserts that the CNS *integrates* the various component functions of the organism into a unitary whole. The CNS is organized in a manner that effects biophysical integration. The brain "centers" are composed of groups of neurons called ganglia, located according to lawful movement of biological orgone energy in the CNS. This has been discussed elsewhere (Konia 1983). One such group of neurons is the hypothalamus which is involved in the integration of both the autonomic nervous system (ANS) and the endocrine system. It will be shown that both the hypothalamus and the endocrine system must be included as part of the plasmatic system.

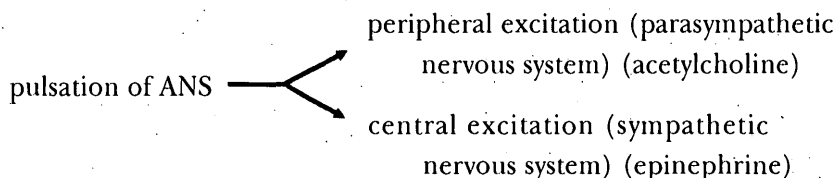
*See Editor's Note accompanying the republication of "The Plasmatic System (Part I): The Immune System" in the *Journal of Orgonomy* 40(1), 2006.

The Relationship of the Endocrine System To The Plasmatic System¹

The ameba lacks both a nervous system and a hormonal system. Nevertheless, all biological functions such as locomotion, digestion, excretion, etc. are governed by the same basic protoplasmic function of pulsation as in higher metazoa.

The structural appearance of the plasmatic system in its simplest form in metazoa is the ANS with its two major divisions, the sympathetic and parasympathetic systems.

It was noted in "The Plasmatic System (Part I)" that the sympathetic innervation to all organ systems effects central excitation while the parasympathetic innervation effects peripheral excitation. The oscillation of excitation between center and periphery constitutes organotic pulsation (Konia 1993). The hormones that correspond to these two systems are epinephrine and acetylcholine, respectively. In effecting excitation, epinephrine is functionally identical to activity of the sympathetic nervous system and acetylcholine to the activity of the parasympathetic nervous system. Together, the autonomic and hormonal systems maintain the pulsatory function (expansion and contraction) which sustains life. Reflecting the simplicity of their biological function, these two hormones have the simplest biochemical structure of all the major hormones of the endocrine system.



In phylogenic development, the higher level of organotic potential in living systems is maintained by the biological synthesis of biochemical substances of greater specificity and higher organotic charge. This process also gives rise to the development of the endocrine system. Accompanying the specialization that occurs with

¹The purpose of this discussion is to demonstrate the basic fact that the endocrine system functions as a vital component of the plasmatic system. The wealth of biochemical and physiological details amassed by mechanistic endocrinology are comprehensible when viewed from this perspective.

the phylogenic development of metazoa, the plasmatic system is organized according to the capacity of these biological systems to attain a greater level of organotic charge. Qualitatively different biological systems arise accompanying quantitative increases in organotic charge of biological systems. As an example, the vascular system develops and with it the functionally distinct blood components that sustain a higher level of organotic charge and discharge. These include primarily the red and white blood cells.

Similarly, the various endocrine glands and the hormones produced by them are formed as the greater specialization accompanying the increased organotic capacity level of more complex organisms demands a higher metabolic rate. In this way, the endocrine system develops as an *extension* of the neurovascular-hormonal plasmatic system, to which it is related both anatomically and physiologically. The endocrine glands discharge their hormones directly into the blood stream of the plasmatic system and exert specific biological effects on their various target organs and organ systems.

Claude Bernard, the renowned 19th century French physiologist, first formulated the concept of homeostasis, a tendency to physiological stability of the organism. He pointed out that an organism lives within two environments: the external environment that surrounds it, and, more importantly, a *milieu interieur*.

This internal environment, the fluid compartment, contains the fluid produced and maintained by the organism within which the cells of the body are bathed. Organisms become more independent of changes in the outer world by maintaining a constant internal environment. Bernard emphasized that "it is the fixity of the *milieu interieur* which is the condition of free and independent life" and that "all the vital mechanisms, however varied they may be, have only one function, that of preserving constant the conditions of life in the internal environment" (Bernard).

Mammals, for example, maintain stringent control over the concentration of glucose, calcium, sodium, hormones, and other

constituents of the body fluids. Only small fluctuations in their important fluid components are tolerated. Otherwise, the organism faces immediate and often fatal consequences. Homeostatic values, however, are not invariant. They depend on the time of day, time of year, stage of development, age, and sexual status of the organism. Undoubtedly, the ability to maintain a constant internal environment, often in the face of adverse environmental conditions, is responsible for the wide distribution of mammals in all types of habitats.

The biophysical basis for maintaining a *milieu interieur* is the organism's *organotic capacity level*. The higher organotic capacity level of phylogenically developed metazoa is functionally identical with increased levels of charge and discharge required in metabolic functions. This results in a greater degree of biological independence from the environment.

How does the body maintain such precise control over the concentration of such fluid components as glucose, calcium, and sodium ions? Mechanistic medicine resorts to the concept of feedback systems. If the plasma concentration of a metabolite is diminished, for example, by its loss through the urine or by perspiration, the body responds by releasing a substance, in this context, a hormone, which then acts on other cells to release their stores of the needed metabolite or to prevent its loss from the body. These responses to hormonal stimulation elevate the plasma levels of such factors as sodium or glucose to a point which then stimulates the body to shut off the synthesis and release of the hormone. Increased metabolic availability (higher blood and intracellular levels), therefore, functions as a negative feedback stimulus.

The Pulsatory Nature of the Endocrine System

Although capable of explaining the phenomenon of homeostasis, the concept of feedback systems is mechanical and ignores the biological *function* that is the basis for regulating the constancy of the blood components.

Using the pulsatory function to understand homeostasis is far simpler and avoids complicated and often mystical assumptions, such

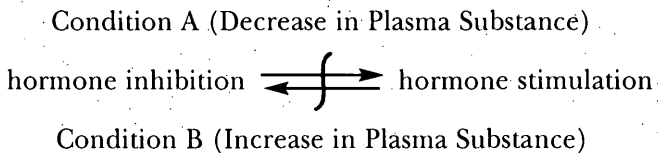
as the problem of how a receptor “recognizes” the levels of a particular blood component so that it can either “turn on” or “turn off” its activity.

We know that the organ systems regulated by the endocrine system function in a pulsatory manner. In order to satisfactorily comprehend endocrine functioning, two questions need clarification.

1. What is the functional basis for the interactions of the endocrine system hormones with the various organs of the body that they regulate?
2. What is the basis for the function of “recognition” of the endocrine system hormones by their various target organs?

The Basis for the Interaction of the Endocrine System with the Somatic Function of the Organism

This interaction can be simply and satisfactorily understood when viewed according to the principle of *alternating opposition* between specific hormone systems regulating a particular metabolic function. On a biochemical or ionic level, this principle is based on the expression of the antithetical functions of expansive (parasympathetic) and contractive (sympathetic) activity. This can be written as a functional equation in the following manner:



Alternating Opposition Between Hormonal Systems

Some specific examples follow:

A. Glucose Homeostasis

If plasma glucose levels drop due to increased muscular activity or limited food intake, the alpha (α) cells of the Islets of Langerhans

release glucagon. This hormone effects the discharge of stored glucose into the blood stream and returns glucose levels back to normal. If, on the other hand, blood glucose levels are elevated, as occurs after a meal, other pancreatic islet cells, the beta (β) cells, release the hormone insulin. Insulin induces the uptake of glucose from the blood into the liver and other organs. Thus, the glucose level of the blood is reduced to normal concentrations. The regulation of blood glucose can be shown functionally:

Cells Release Glucagon
(Contraction)

decrease blood glucose
via liver storage or
via exercise \longleftrightarrow increase blood glucose
via release from liver or
via dietary intake

Cells Release Insulin
(Expansion)

*Alternating Opposition Between Glucagon-Insulin System of
Pancreatic α and β cells*

B. Calcium Homeostasis

If ionic calcium levels fall, the parathyroid gland releases parathormone which then acts on bone to release stored calcium ions, on the gut to enhance absorption of calcium, and on the kidney to enhance calcium reabsorption. All these actions tend to bring the concentration of the cation back to normal. If the plasma calcium ion level becomes elevated, as it may after a meal, then the parafollicular cells within the thyroid gland release a hormone, calcitonin, which effects deposition of calcium into bone and which prevents calcium uptake and reabsorption. The result is a lowering of plasma calcium. This is shown as follows:

decrease in blood calcium
via calcitonin (expansion) \longleftrightarrow increase in blood calcium
via parathormone (contraction)

Alternating Opposition Between Parathormone and Calcitonin

C. Sodium and Potassium Homeostasis

In this case, the regulation of the potassium (K) to sodium (Na) ratio, alternating opposition of functions occurs, not between two hormones, but between a series of enzymatic and hormonal substances, and the plasma substances being regulated by them (K, Na). The hormonal system consists of angiotension II and the mineralocorticoid hormone, aldosterone.

With a drop in plasma sodium, a series of biochemical reactions occur, ending with the release of aldosterone from the adrenal cortex. This hormone acts on the kidney to effect sodium resorption from the urine. The same effect occurs with an increased plasma potassium to sodium ratio. Increasing plasma sodium, in turn, inhibits aldosterone secretion and, hence, plasma sodium concentrations:

Aldosterone Stimulation
(Contraction)

decrease in plasma sodium, \xleftrightarrow{f} increase in plasma sodium,
increase in plasma potassium \xleftarrow{f} decrease in plasma potassium

Aldosterone Inhibition
(Expansion)

In each of the above examples, one function is an expression of a parasympathetic function (insulin release, decrease in plasma calcium) while the other is an expression of a sympathetic function (glucagon release, increase in plasma calcium, etc.)

The findings tabulated here show the following facts:

1. The antithesis between the potassium (parasympathetic) group and the calcium (sympathetic) group: expansion and contraction.
2. The antithesis of center and periphery with regard to excitation.
3. The functional identity of sympathetic and parasympathetic functions with those of chemical stimuli.
4. The dependency of the innervation of the individual organs on the functional unity and antithesis of the total organism.

The Integrating Function of the Brain

The separate functions that have just been discussed are actually component functions of the organism. In this section, it will be shown how these various component functions are integrated within the unitary functioning of the total organism. As stated earlier, organismic integration is effected by the brain. The *endocrine hypothalamus* and the *pituitary gland* are the two main regions of the brain involved in the function of integration, at least in regard to the plasmatic system and, in particular, the endocrine extension of this system.

Just as the ANS is functionally divided into a center and a periphery—with the central ganglia involved with sympathetic functions and the peripheral ones with parasympathetic functions—so, too, is the hypothalamus functionally organized. The *posterior hypothalamus* is involved with *sympathetic* activity (pupil dilation, rapid heart rate, elevation of systemic blood pressure, increased striated muscle tone) while the *anterior hypothalamus* integrates such *parasympathetic* functions as sleep and digestion.

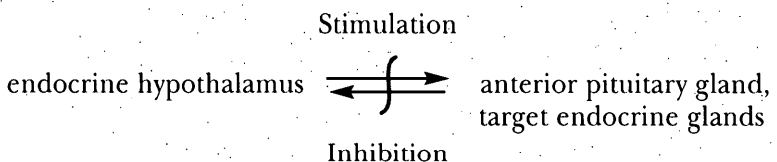
Since the endocrine hypothalamus and endocrine glands are part of the plasmatic system, we ask, what is the functional relationship between them? It has been demonstrated that the hypothalamus is both anatomically and physiologically related to the *anterior* pituitary gland via the hypothalamic-hypophyseal portal system (Guillemin). This system allows hormones synthesized by the hypothalamus, such as gonadotropin-releasing hormone (GnRH) and corticotropin-releasing hormone (CRH), to pass to the anterior pituitary gland where they trigger the pulsatory discharge of various tropic hormones from the anterior pituitary gland. These hormones, in turn, stimulate the discharge of other hormones from the various endocrine target glands, such as thyroid hormone, adrenal-cortical hormones, etc.

The hypothalamus is also functionally and anatomically related to the *posterior* pituitary gland (neurohypophysis) which is actually indistinguishable from the neural substance of the hypothalamus.

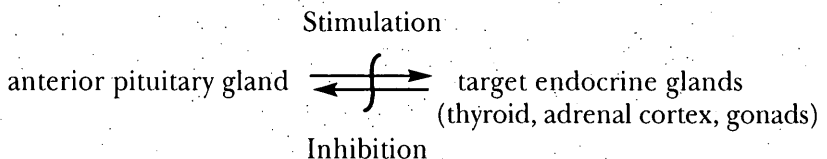
In summary, the hypothalamus is related to the anterior pituitary gland (adenohypophysis) by the vascular component of the plasmatic system and to the posterior pituitary gland (neurohypophysis) by the neural component. *The hypothalamus is thus that part of the CNS which integrates the ANS and the endocrine system.* This justifies inclusion of these brain centers as part of the plasmatic system.

The manner in which the brain integrates the various component functions of the endocrine system is by way of an alternating opposition between the hypothalamus, pituitary gland, and the various target endocrine glands that they affect.

The hypothalamus discharges its various tropic hormones into the pituitary gland which, in turn, is stimulated via its own tropic hormones to trigger the various target endocrine glands (the thyroid, adrenal cortex, and the gonads). The pituitary gland inhibits the hypothalamus while the various target endocrine glands are inhibitory to *both* the pituitary gland and the hypothalamus according to the principle of alternating opposition:



The Functional Relationship Between the Endocrine Hypothalamus and the Anterior Pituitary and Target Endocrine Glands (Thyroid, Adrenal, etc.)



The Functional Relationship Between the Anterior Pituitary and the Target Endocrine Glands

The segmental location of the various target endocrine glands of the hypothalamic-hypophysial system indicates their pulsatory

function. Those glands which are located in a central segment, such as the thyroid (cervical) and adrenals (diaphragmatic), have a sympathicomimetic (contractive) function. The gonads, which are located in a peripheral segment (pelvis), have a parasympatheticomimetic (expansive) function.

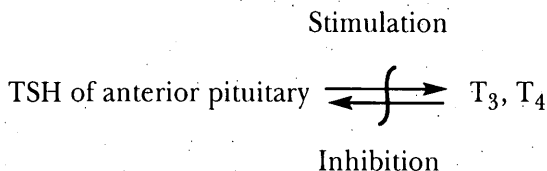
The Regulation of Oxygen Metabolism

As an example, let us take the regulation of oxygen metabolism by the thyroid gland. The hypothalamic tropic hormone, thyrotropin-releasing hormone (TRH), stimulates the adenohypophysis to release thyroid-stimulating hormone (TSH). This hormone is responsible for the thyroid gland's production of its hormones, thyroxine (T_4) and triiodothyronine (T_3).

The chief function of the thyroid gland is the regulation of metabolism. There is strong evidence that the thyroid hormones stimulate mitochondrial oxygen consumption and the production of high energy phosphates (ATP). These substances are necessary for many biological functions, one of which is to maintain the energy level of the organism above the level of the environment. For example, ATP maintains a positive sodium level within cells which, in turn, enables the organism to retain tissue water and orgone charge. This function is accomplished through a great expenditure of energy. In the process of ATP hydrolysis, heat is liberated which accounts for homeothermia, or the maintenance of a temperature level above that of the environment.

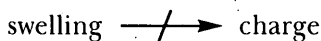
Thyroid hormones (T_3 , T_4) are indispensable for normal growth and development by increasing oxygen metabolism. Yet, if left unchecked, they would increase metabolic activity to life-threatening proportions. The hormone that regulates the activity of thyroid hormone is thyroid-stimulating hormone (TSH) secreted by the anterior pituitary gland.

The functional interaction between T_3 , T_4 , and TSH is given by this simple relation:



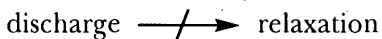
This functional interaction maintains the euthyroid state, the optimum rate at which oxygen is metabolized. A disturbance in this basic relationship, due to any cause, results in disturbances in thyroid function manifested as hypothyroidism (decreased metabolism) or hyperthyroidism (increased metabolism). These metabolic disturbances, in turn, are based on a biopathic disturbance affecting specific *phases* in the 4-beat pulsatory cycle of tension-charge-discharge-relaxation.

In hypothyroidism, mitochondria are altered both morphologically and functionally, interfering with adenosine triphosphate (ATP) production. Decreased metabolism results from a block between the functions of tension (mechanical swelling) and bioenergetic charge. This manifests in a low basal metabolic rate (BMR) with low pulse, decreased cardiac output, lowered body temperature, cold intolerance, coarse, dry skin, etc. The specific disturbance between the functions of swelling (tension) and charge manifests clinically as *tissue swelling* (myxedema):



Pulsatory Disturbance in Hypothyroidism

In contrast, hypermetabolism resulting from hyperthyroidism is accompanied by sympatheticotonia. The disturbance in the 4-beat cycle in this condition occurs between discharge and relaxation:



Pulsatory Disturbance in Hyperthyroidism

Physical manifestations in this biopathy are rapid pulse, increased cardiac output, increase in body temperature with heat intolerance and erythematous, sweating skin. The seemingly paradoxical combination of increased appetite and weight loss is a direct result of increased metabolic activity.

The close association between hyperthyroidism and excessive sympathetic activity is understandable by examining the point in the 4-beat cycle where the biopathic disturbance occurs (between discharge and relaxation). This highlights that the disturbance is in the *convulsive phase* of the pulsatory cycle.

In humans, the thyroid gland is richly supplied with sympathetic postganglionic neurons that not only serve a vasomotor function, but appear to directly innervate the individual follicular cells of the thyroid gland. Another sign of sympathicotonia in hyperthyroidism is muscle weakness, the effect of excessive thyroid hormone on the contractile apparatus of the skeletal musculature. While the speed of muscle fiber contraction is increased, its duration is reduced. Also seen are dry mouth, decreased gastric acid secretion, abnormal glucose tolerance, hyperthermia, restlessness, agitation, and, occasionally, paranoia—all evidence of increased sympathetic activity.

In health, thyroid activity is governed by a natural pulsation with predominant expansion. This is referred to as the euthyroid state. In the presence of armor involving the thyroid gland, the function of contraction predominates with resultant hyper- or hypothyroidism. The metabolic consequences depend on the phase of the 4-beat sequence in which the disturbance occurs.

In certain cases, disturbances in thyroid function are based primarily on pituitary dysfunction and an abnormally high production of TSH. In this situation, hyperthyroidism is secondary to excess TSH. This is known as Graves' disease. It is accompanied by a protrusion of the eyes due to a myxedematous swelling of soft tissue behind the eyeball (exophthalmos). The cause of exophthalmos is probably a manifestation of ocular armor—a block in the ability of the soft tissues

behind the eyes to hold charge.² This condition has to be distinguished from hyperthyroidism due to primary thyroid involvement resulting from armor of the cervical segment.

The same functional relationship that occurs between the thyrotropic hormone (TSH) and the thyroid hormones can be shown to exist between the other tropic hormones of the pituitary gland and their target endocrine glands.

The Synergistic Action of Epinephrine and Adrenal Steroids

For the sake of this discussion, which is to show the manner in which the endocrine system is integrated with the ANS, the effect of the hypothalamus and the more cephalad cortical centers is not relevant.

The adrenal gland consists of two types of tissue of different embryological origin. Chromaffin cells are *ectodermal* in origin and are derived from the neural crest, whereas the steroidogenic component of the adrenal is of *mesodermal* origin. In humans, the chromaffin tissue which produces the catecholamines norepinephrine (NE) and epinephrine (E) is located deep within the adrenal gland (medulla). It is surrounded by an outer layer called the adrenal cortex, composed of cells which produce steroids. The two major classes are the glucocorticoids (cortisol, corticosterone) and the mineralocorticoids (aldosterone).

In embryological development, these two tissues come together as a single anatomical entity, the adrenal gland. There is a correlation between their degree of anatomical association and the relative amounts of NE and E produced by the chromaffin tissue: epinephrine synthesis is dependent on adrenal steroids.

Under normal conditions, corticosteroids are discharged according to the diurnal cycle with low concentrations during sleep and increased levels upon waking. Under certain anxiety-producing conditions, both hormones function synergistically. It appears that while E is functionally identical with acute anxiety, the synergistic action of E and adrenal steroids occurs during conditions of *chronic*

²Graves' disease is most likely a biopathic condition primarily involving the ocular segment. It is often precipitated by an emotional shock in certain predisposed individuals.

anxiety. If an organism is in a situation in which its integrity is threatened in a *sustained* manner, the initial reaction of contraction (acute sympatheticotonia with E release) is followed by a persistent stimulation and release of adrenal steroids. This condition is referred to as *stress* in the traditional medical literature. It seems to correspond to the condition of *chronic sympatheticotonia* in the ergonomic literature.

The hormonal aspects of this condition were identified by Selye (1967) and referred to as the *general adaptation syndrome* (GAS). In response to stress (chronic anxiety), the organism reacts in a typical manner:

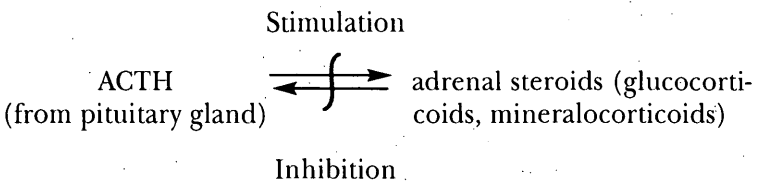
1. An initial "alarm" reaction in which acute sympatheticotonia is associated with E release from chromafin tissue and NE release from sympathetic neurons. This is accompanied by other sympathicomimetic effects such as increased basal metabolic rate and increased blood sugar.
2. A *resistance* phase which is associated with the release of adrenal glucocorticoids. This hormone enhances E activity. In the absence of adrenal steroids, the activity of E and NE are depressed. With chronic biophysical contraction, this condition rapidly leads to shock and death of the organism. Glucocorticoids effect a rise of plasma glucose by a variety of pathways, such as proteolysis, lipolysis, and gluconeogenesis. Increased plasma glucose is functionally identical to sympatheticotonia and *central excitation*. The body catabolically converts fats, proteins, and carbohydrates into high energy glucose and discharges it into the plasma. The actions of glucocorticoids are slower than the initial actions of catecholamines, but they provide, in a sustained manner, the energy necessary for the organism's survival under conditions of chronic anxiety.
3. Exhaustion. Prolonged sympatheticotonia and hypercortisolism eventually lead to pancreatic failure with hyperglycemia (diabetes

mellitus), failure of the immune system, chronic muscular hypertension with muscle wasting, and other signs of sympathetic hyperactivity such as gastrointestinal ulceration.

Both aldosterone and cortisol are functionally related to the action of the pituitary hormone ACTH, a sympathomimetic substance. Although not included as part of the GAS, the effects of aldosterone should be considered in the process of chronic sympathicotonia since, under conditions of chronic stimulation, it, too, is part of the total picture of biophysical contraction. Through its action on sodium retention and potassium loss, plasma volume is increased. This condition is functionally identical to *central excitation and charge* in which fluids are retained within the organism's core—a sympathetic function.

Under conditions of biophysical expansion, the organism is in a state of parasympathicotonia, a state of peripheral excitation. Accordingly, the above hormone systems involved with biophysical contraction are inactive.

The manner in which the adrenal steroids are integrated with total organismic functions is given by the function of alternating opposition:



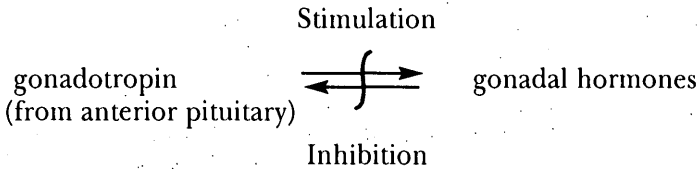
This system becomes activated under conditions giving rise to chronic anxiety.

The Gonadal Hormones

The functional identity and antithesis of the anatomy, physiology, and biochemistry of the male and female reproductive systems are immediately apparent from embryological, physiological, and

endocrinological observation. We will confine this discussion to a brief summary of the endocrinological aspects of sexual functioning.

The same functional relationship that exists between the pituitary gland and the other target glands of the endocrine system is also seen with the pituitary gland and the gonads. That is, alternating opposition, expressed in the following equation:



In contrast to the thyroid and adrenal steroid hormones, however, the gonadal steroids, which include both the male and female hormones (testosterone, estrogen, progesterone), are all derived from the *expansive* functions of the organism, which include the growth and development of the male and female sexual organs and the organ functions involved with reproduction, pregnancy, parturition, and lactation. Since gonadal steroids are parasymphomimetic, they are immunosuppressive.³

Expansive effects of gonadal steroids, other than those on the sexual apparatus, are summarized below:

³See the first article in this series, "The Plasmatic System (Part I): The Immune System," *Journal of Orgonomy* 27(1), (1993), and republished in 40(1), 2006.

MALE (Testosterone)	FEMALE (Estrogen, Progesterone)
1. Increased muscle mass due to nitrogen retention and protein synthesis	1. Female fat deposition, water, sodium retention in reproductive system (estrogen)
2. Increased motor neuron synaptic development involved with sexual activity	2. Weight gain (estrogen)
3. Erythropoiesis	3. Maintain bone deposition (estrogen)
4. Bone deposition	4. Decreased plasma cholesterol (estrogen)
5. Development of secondary sexual characteristics	5. Rise in BMR* (progesterone) <i>*Basal metabolic rate</i>

Mechanistic medical thinking incorrectly assumes that gonadal hormones are exclusively responsible for sexual activity. Although they are necessary for sexual functioning, the importance of unimpeded pulsatory activity of biological orgone energy is not recognized. In armored individuals, genital gratification is disturbed even though gonadal steroids may be within normal limits. Similarly, menstrual disturbances (e.g., premenstrual syndrome⁴ or PMS) which are indications of orgasmic impotence, may occur without any abnormality in cyclic hormonal activity. Although hormonal function may be essential, it is not a sufficient condition for sexual gratification.

Armoring of segments containing an endocrine gland may give rise to an endocrinopathy. This will be discussed in a separate article.

Summary

The following considerations allow us to include the endocrine systems as part of the plasmatic system:

1. The endocrine system discharges its products (hormones) directly into the vascular division of the plasmatic system. It

⁴Premenstrual syndrome, a complex of symptoms, results from the blocking by pelvic armor of the energy discharge accompanying menstruation. The pelvic armor also blocks the energy discharge of the genital orgasm.

usually functions according to the principle of alternating opposition between expansion and contraction. At times, it functions synergistically.

2. The presence of a portal system between the hypothalamus (which is part of the plasmatic system) and the anterior pituitary gland.
3. The neural association between the hypothalamus and the posterior pituitary gland.
4. The presence of tropic hormones within the hypothalamus itself which functionally interact with the hormones of the pituitary gland.
5. The pulsatory nature of this interaction, as well as endocrine functions in general, which are an expression of the paired homogeneous functions of charge-discharge.

The following table summarizes the relationship between the various metabolic functions and the homogeneous functions of charge and discharge in maintaining homeostasis.

METABOLIC FUNCTION	PARASYMPATHETIC FUNCTION (CHARGE)	SYMPATHETIC FUNCTION (DISCHARGE)
Glucose	Insulin (Decrease plasma glucose)	Glucagon (Increase plasma glucose)
Calcium	Calcitonin (Decrease plasma calcium)	Parathormone (Increase plasma calcium)
Sodium, Water*	Plasma decrease via aldosterone inhibition	Plasma increase via aldosterone stimulation
Glucose*	Plasma decrease via cortisol inhibition	Plasma increase via cortisol stimulation
Sex organs **	Increase gonadal hormones	Decrease gonadal hormones

* Action via pituitary \Rightarrow adrenal cortex

**Action via pituitary \Rightarrow gonads

The Manifestations of the Perceptual Function in Endocrinology

In "The Plasmatic System (Part I): The Immune System," we briefly discussed the inadequacy of the mechanistic concepts of *recognition* and the *clonal selection theory* to explain the specificity of the antigen-antibody reaction in acquired immunity (Konia 1993). Similar mechanistic-materialistic concepts are used in endocrinology to explain how specific biochemical receptors combine with specific hormones. The specificity of complex biological reactions requires that some form of "recognition" take place between hormones and the biological functions in which they participate. Accordingly, mechanism postulates specific mechanoreceptors, baroreceptors, chemoreceptors, osmoreceptors, etc., each capable of being "sensitive" to a specific physical or chemical modality.

Functional thinking views these mechanistic theories as only partially correct since the perceptual function cannot originate from structural elements but must arise from mass-free bioenergetic functions. Perception appears when mass-free orgone energy first differentiates into living matter. On the deepest level of biological functioning, whether in an amoeba, a jellyfish or the ANS, there is only pulsation. The *perceptual function* of orgone energy is simply manifested as pleasure accompanying expansion and anxiety or fear accompanying contraction.

With the increase in orgonotic charge accompanying phylogenetic development of more specialized biological systems and functions, *the perceptual function also becomes more specialized according to the specific functions of the organism accompanying these more developed functions*. With the development of a mesoderm, for example, muscular and vascular tissues are added to the simple functions of the expansion (pleasure)-contraction (anxiety) antithesis. As a result, the expression of rage with its accompanying *perception*, first appears in the living organism.⁵

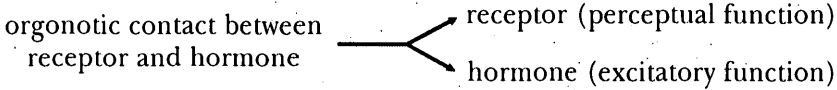
In the realm of purely *somatic* events, the perceptual function also becomes more specialized as biological reactions become more specific. The specificity of biological functions in the somatic realm necessitates that the perceptual function becomes highly

⁵Emotions are a manifestation of the perceptual function in the *psychic* realm.

structuralized. Perceptual specificity is determined by the specialization of somatic energy functions.

In physiological processes regulated by hormones, for example, there are receptors both within the cell and on the cell surface that are a manifestation of the perceptual function of orgone energy involved with highly specific biochemical events. Mechanism views the function of these receptors in an exclusively mechanical fashion—stimulus-response. This misses its essential perceptual nature, which is ultimately derived from mass-free orgonotic functions in the primary mass-free realm.

We assert that orgone energy of the receptor site perceives the specific biochemical substance (hormone) that functions in response to it. Contact between the perceptual function of the receptor and the excitatory function of the hormone or other biochemical substances is necessary before the specific biological function occurs.



With hormone-receptor contact, the highly specific cascade of biochemical events related to the biological hormonal function is effected.

Functional thinking allows the numerous specific biochemical reactions to be placed within this framework. This consists of understanding the development of biological function from simple to complex. Admittedly, this is a highly ambitious project. Its accomplishment will provide a deeply satisfying comprehension of biological functions that is superior to current mechano-mystical theories.

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