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# Ayurveda and Endocrinology: Common Ground, Common Goals

## ABSTRACT

In this editorial, we explore Ayurvedic concepts of health, and analyze how they relate to modern endocrinology. We expand our discussions to inclusion of other South Asian schools of medicine, as well as philosophical and metaphysical models of South Asian thought. A detailed assessment suggests that Ayurveda is based upon sound endocrine and metabolic foundation, which can serve as a framework for person-centered, integrative management of modern pandemics such as diabetes, obesity and other endocrine disorders. We call for awareness and understanding of the common ground, as well as common goals of Ayurveda and modern endocrinology.

**Keywords:** Holistic health, integrated health, integrative health, mind-body medicine, one health, person-centered medicine

Ayurveda is an ancient discipline, with a well-structured framework that allows for scientific classification and scientific study of disease and disorders. It is a tribute to their clinical acumen and insightful genius that in spite of nonavailability of modern investigative and diagnostic tools, Ayurvedic physicians of the past were able to craft a rational rubric for medical management.<sup>1</sup>

Endocrinology is a young branch of science with a 'modern' history that goes back to just a century. The discovery of hormones, and the methods of measuring them, are relatively recent developments in the evolution of medicine. In this opinion piece, we explore similarities and contrasts between the description of endocrine glands, hormones and their disorders in Ayurveda and modern medicine.

## OF CHAKRAS AND GLANDS

Traditional Indian philosophy describes a series of 'chakras' (or wheels), located at specific levels of the body's meridian. These chakras have been equated to the main glands of the body. It must be noted, however,

that the chakra system has not been mentioned in classic Ayurvedic texts. But they have rather been a part of religious and quasi-religious texts, related to various Oriental religions, including Buddhism and Hinduism.

Chakras were correlated with the endocrine system for the first time by Cajzoran Ali, an American yoga therapist, in 1928. Further discussion and dialogue took place in the mid-20th century. The book "Bodymind: A Synthesis of Eastern and Western approaches to Self-awareness, Health and Growth", and a journal article, "Bodymind and the Evolution to Cosmic Consciousness" were published in 1977.<sup>2</sup>

The chakras do bear uncanny similarity with the endocrine glands, as described in modern biology. Multiple books and treatises have been written on these connections, without any authentic Ayurvedic basis.<sup>3,4</sup> It is pertinent to note that most of the modern equivalents of the 'chakras', and their functions, have been discovered after the first correlation by Cajzoran Ali. Ongoing advance means that we still continue to find newer hormones, and decipher more functions of existing ones.

Table 1 lists the major chakras and their glandular equivalents. This list is representative, and lay literature throws up differing versions of the same. Some lists include the pineal gland, which has been clearly identified in Indian texts as the 'third eye' (teesri aankh). The pineal gland secretes the hormone melatonin.<sup>5</sup> Though considered vestigial by earlier endocrinologists, researchers are now unraveling various functions of this organ.

### OF OJAS, TEJAS, PRANA AND HORMONES

Ayurveda does not use the word 'hormone', but then, neither did modern medicine till about a century ago.<sup>6</sup> However, it lists three forms of subtle energy: *prana*, *tejas* and *ojas*. *Ojas*, loosely translated as radiance, vigor or essence, is what influences the physical, psychosocial and spiritual health of an individual. Ayurveda views *ojas* as a quantifiable liquid, which cannot be seen with the naked eye, and which cannot be compared to any other body tissue. *Charaka* states that *ojas* dwells in the heart, and is predominantly white, yellowish and red. Earlier commentators have thought of *ojas* as white blood cells or immune factors.<sup>7</sup> Apart from *ojas*, two other subtle forms of energy have been described in Ayurveda. These are *prana* and *tejas*. *Tejas* is defined as 'inner radiance' or 'fire of the mind', while *prana* means breath or essence of life.<sup>8</sup>

*Ojas*, *tejas* and *prana*, we feel, can be likened to hormones of the human body. Present in minute quantities, hormones circulate in the vascular system. *Ojas* is thought to reside in the heart, and we now know that the heart is both a source of as well as a target of hormones. Loss of *ojas* has been described in Ayurveda.<sup>7</sup> The description of *ojo visramsya*, *oja vyapth* and *ojokshaya* is similar to that of progressively worsening Addisonian crisis, myxedema coma or hyponatremia.

The concept of *ojas* includes mind-body medicine, and this is true for hormones as well: the mind (hypothalamus) secretes endocrine molecules and responds to changes in their concentration as well.

**Table 1.** Endocrine Glands and Chakras

Sahastra	Thousand petalled	Hypothalamus
Ajna/Agya	Command	Pituitary
Vishuddha	Purest	Thyroid
Anahita	Unstruck	Heart
Manipura	Jewel city	Navel/Adrenals
Svadhishthana	Self-established	Gonads
Muladhara	Root of spine	?Autonomic system

### OF TEJAS AND PHEROMONES

*Tejas*, i.e., 'inner radiance' or 'fire of the mind' may be likened to pheromones, as well as to the adrenergic system. *Tejas* not only imparts glow, luster, courage and fearlessness, but also creates an aura which attracts (or repels) other persons.

Pheromones are chemicals which can act like hormones outside the person's body. While Ayurveda speaks of a subtle body or astral body (*sukshma sharira*), apart from the physical body (*sthula sharira*).<sup>9</sup> Tibetan and Bhutanese traditional medicine clearly mention six types of body, including astral, cosmic and bliss bodies. It is possible that the functionality of pheromones, which has not been elucidated completely by modern science till date, contributes to these states, as well as the rainbow body described in Tibetan philosophy. These schools of health also speak of the human as a microcosm, existing in an environmental macrocosm. The modern concept of 'one health', which integrates human, animal and environmental health is similar to the microcosm-macrocosm analogy.<sup>10</sup> We take this opportunity to add a third aspect, the mesocosm, to this analogy. We define the mesocosm as that part of the immediate environment, which can be modulated directly by an individual being. Pheromones may be the connection between the microcosmic and mesocosmic spheres of existence.

### OF DOSHAS AND METABOLISM

Ayurvedic physiology is based upon the equilibrium of three doshas, *vata*, *pitta* and *kapha*.<sup>11</sup> Disequilibrium or imbalance leads to disease. An exactly similar concept exists in modern medicine. Unregulated *vata* is a state of catabolism; excess *kapha* means maladaptive anabolism, and *pitta* represents balanced 'eubolism'. This framework can be used as an approach to various endocrine disorders, including hypo- and hyperthyroid, adrenal and gonadal diseases. Insulinopenia (type 1 diabetes) and insulin resistance (obese type 2 diabetes) correspond to *vata* and *kapha* as well.

Ayurvedic physicians use the tridoshic analogy to classify not only physical phenotype, but emotional behavior and body secretions as well. The appraisal of body secretions as being *vata*, *pitta* or *kapha* may be taken as a surrogate marker for modern-day biochemical and hormonal assays. Each dosha has specific physiologic functions, which may be extrapolated to endocrine balance. *Vata*, thought to reside in the infraumbilical region of the abdomen, oversees the autonomic regulation of urination, excretion and blood pressure. Excessive *vata* suggests a hyperadrenergic state, while

deficiency implies inadequate sympathetic activity. *Pitta*, located in the supraumbilical area of the abdomen, maintains digestion, body temperature and bodily health. Perhaps *pitta* can be considered the equivalent of the incretin system or the gut microbiome, and the intestine can be considered the seat of *pitta*, as its actions may be mimicked by a healthy gastrointestinal endocrine system. *Kapha* is present in the chest region; it keeps the body stable and strong, through hydration and lubrication. In moderation, *kapha* represents a state of anabolism. If unregulated, however, it may lead to “maladaptive anabolism”, as in acromegaly, Cushing’s syndrome, obesity, type 2 diabetes or polycystic ovary syndrome. It would be difficult to ascribe a single glandular equivalent to *kapha*, however.

### OF SPECIFIC DISORDERS

Apart from these overarching concepts, classic Ayurvedic texts refer to specific endocrine disorder such as goiter, diabetes (*prameha*) (both type 1 and type 2) and hypogonadism. In fact, the list of “eight despicables” reads like an endocrine checklist: over-tall, over-short, over-hairy, hairless, over-black, over-fare, over-obese, over-lean (persons).<sup>12</sup>

### OF PERSON-CENTERED CARE

Ayurvedic interventions are person-centered in their approach. Specific therapies are decided, based upon the phenotype as well as emotional status of the person. In this manner, the subject is similar to modern endocrinology, which also speaks of person-centered care. The Quadruple of Atreya highlights the need for team work between patient, physician, “attendant” or caregiver and drug therapy.<sup>13</sup> The same style of working is seen in endocrinology, where the health care team works along with the person being treated, and his or her family, to achieve optimal outcomes.

### OF PRAGMATISM AND PRACTICE

We have access today to modern means of identifying and measuring hormones, assessing their function and categorizing their diseases. This allows us to correct various dysfunctions, and achieve better health. As women and men of healing, we must be passionate about our work. At the same time, we must be dispassionate while assessing information, and evaluating insight. We should also be mindful that no science is static, and no discipline exists in isolation.

Endocrinology is a young offshoot of modern medicine, which continues to uncover and discover newer aspects of its own existence. Increasingly, we appreciate the

multiple links and connections of our subject with other fields of medicine and surgery as well as non-medical sciences.

Realization of this reality makes us humble, not humiliated, and allows us to continue learning, while claiming leadership in our chosen field of work. It is with this attitude and approach that we should view any and every other science, including Ayurveda. Reading and analyzing the subject, finding comparisons and contrasts, and utilizing beneficial aspects for the well-being of our patients, is the way forward. This is what we hope to achieve through this opinion piece.

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