The Endocrine System - Part 1
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What Does the Endocrine System Consist of?
Pituitary glands                  Adrenal glands
Pineal glands                    Pancreas
Hypothalamus                      Reproductive glands:
Thyroid gland                    Ovaries (female)
Parathyroid glands                Testes (male)
Thymus gland

What is the Function of the Endocrine System?
The endocrine system is in charge of body systems that happen slowly, such as cell growth. The foundations of the endocrine system are glands and hormones.

Hormones transfer information and instructions from one set of cells to another.

Glands produce and secrete chemicals. They select and remove materials from the blood, process them and secrete the finished chemical product for use somewhere in the body.

*Pituitary gland* - the major endocrine gland. A pea-sized body attached to the base of the brain, the pituitary is important in controlling growth and development and the functioning of the other endocrine glands.

*Pineal gland* - a pea-sized conical mass of tissue behind the third ventricle of the brain, secreting a hormonelike substance in some mammals.

*Hypothalamus* - a section of the brain responsible for the production of many of the body’s essential hormones, chemical substances that help control different cells and organs. The hormones from the hypothalamus govern physiologic functions such as temperature regulation, thirst, hunger, sleep, mood, sex drive, and the release of other hormones within the body. This area of the brain houses the pituitary gland and other glands in the body.

*Thyroid gland* - a vitally important hormonal gland that plays a major role in the metabolism, growth and maturation of the human body. It helps to regulate many body functions by constantly releasing a steady amount of hormones into the bloodstream.
Parathyroid glands - four tiny glands, located in the neck, that control the body's calcium levels. Each gland is about the size of a grain of rice. The parathyroids produce a hormone called parathyroid hormone (PTH).

Thymus gland - a lymphoid organ situated in the neck of vertebrates that produces T cells for the immune system. The human thymus becomes much smaller at the approach of puberty.

Adrenal glands - made up of two glands that sit on top of your kidneys that are made up of two distinct parts.

- The adrenal cortex—the outer part of the gland—produces hormones that are vital to life, such as cortisol (which helps regulate metabolism and helps your body respond to stress) and aldosterone (which helps control blood pressure).

- The adrenal medulla—the inner part of the gland—produces nonessential (that is, you don’t need them to live) hormones, such as adrenaline (which helps your body react to stress).

Pancreas - secretes enzymes, or digestive juices, into the small intestine to further break down food after it has left the stomach. This gland also produces the hormone insulin and secretes it into the bloodstream in order to regulate the body's glucose or sugar level.

**Common Acute and Chronic Problems for Endocrine System:**

**Adrenal Disorders:**
- Addison’s disease
- Mineralocorticoid deficiency
- Adrenal insufficiency
- Conn’s syndrome
- Cushing’s syndrome
- Gluccocorticoid remediable aldosteronism (GRA)
- Pheochromocytooma
- Congenital adrenal hyperplasia
- Adrenocortical carcinoma

**Glucose homeostasis disorders:**
- Diabetes - Type 1, Type 2, Gestational, Mature Onset
- Hypoglycemia
- Glucagonoma

**Thyroid disorders:**
- Hyperthyroidism
- Hypothyroidism
- Hashimoto’s disease
- Grave’s disease
- Goiter
- Thyroiditis
- Graves-Basedow disease
- Toxic multinodular goiter
- Thyroid cancer
- Thyroid hormone resistance

**Endocrine tumors:**
- Multiple endocrine neoplasia I and II
- Carcinoid syndrome
Pituitary gland disorders:
Hypopituitarism  Acromegaly (Gigantism)
Cushing’s disease  Prolactinoma

Reproductive hormone disorders:
Polycystic ovary syndrome (PCOS)  Hermaphroditism
Precocious puberty  Gonadal dysgenesis
Androgen insensitivity syndrome  Hypogonadism (Gonadotropin deficiency)
Kallmann syndrome  Klinefelter syndrome
 Turner syndrome  Ovarian failure
Testicular failure  Delayed puberty

Parathyroid gland disorders:
Primary hyperparathyroidism  Secondary hyperparathyroidism
Tertiary hyperparathyroidism  Hypoparathyroidism

Misc:
Pancreatitis  Autoimmune polyendocrine syndromes
Incidentaloma

Herbal Applications for the Endocrine System:
Extracts  Tea

Ways to Maintain Endocrine System Health:
~ Eat organic as much as possible, especially meat, dairy and the ‘dirty dozen’ fruits and veggies (pesticides are endocrine disruptors)
~ Avoid low fat diets, instead consume good healthy fats rich in omegas and a rainbow of vegetables: dark green leafy vegetables and orange pigment rich vegetables are especially good
~ Avoid artificial sweeteners
~ Purify your water, both drinking and bathing
~ Avoid plastics, especially for food and water. Use glass or metal water bottles. Never heat food in plastic, which releases toxins into the food
~ Avoid environmental toxins such as bromides (found in soft drinks, bakery items and hot tubs), phthalates (found in hair spray, nail polish and used to soften plastics) and triclosan (found in antibacterial soaps, beauty products and many cleaning products)
~ Switch to more natural products for everyday life: cleaning, bathing, shampooing, laundering, etc.
~ Eliminate excess stress
~ Get plenty of restful sleep on a regular basis
~ Support your well being through doing less, practicing rest and relaxation EVERY DAY
~ Supplements to support the endocrine system: B-complex, especially: pantothenic acid (B5), niacin (B3) and cobalamin (B12), vitamin C, D3, magnesium citrate

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### Herbs for the Endocrine System:

#### Adaptogens
- Ashwagandha (*Withania somnifera*)
- Astragalus (*Astragalus membranaceus*)
- Eleuthero (*Eleutherococcus senticosus*)
- Ginseng (*Panax ginseng*)
- Licorice (*Glycerhiza glabra*)
- Reishi (*Ganoderma lucidum*)
- Rhodiola (*Rhodiola rosea*)
- Schizandra (*Schizandra chinensis*)
- Shatavari (*Asparagus racemosus*)
- Tulsi (*Ocimum sanctum*)

#### Relaxing Nervines
- California Poppy (*Eschscholzia californica*)
- Chamomile (*Matricaria recutita*)
- Crampbark (*Viburnum opulus*)
- Lavender (*Lavendula officinalis*)
- Lemon Balm (*Melissa officinalis*)
- Milky Oats (*Avena sativa*)
- Passionflower (*Passiflora incarnata*)
- St. John’s Wort (*Hypericum perforatum*)
- Skullcap (*Scutellaria laterifolia*)
- Valerian (*Valerian officinalis*)
- Vervain (*Verbena officinalis*)

*Use only under the care of a qualified herbalist

Please note: while the following herbs can assist in healing these specific indications, work with diet and lifestyle also play a large role in the healing process.

#### Adrenal Specific Herbs
- Ashwagandha (*Withania somnifera*)
- Ginkgo (*Ginkgo biloba*)
- Ginseng (*Panax ginseng*)
- Gotu kola (*Centella asiatica*)
- Nettles (*Urtica dioica*)
- Rhodiola (*Rhodiola rosea*)

#### Thyroid Specific Herbs

**Hypothyroid**
- Ashwagandha (*Withania somnifera*)
- Black Walnut (*Juglans nigra*)
- Bladderwrack (*Fucus vesiculosus*)
- Hawthorn (*Crataegus spp.*)
- Ginkgo (*Ginkgo biloba*)

**Hyperthyroid**
- See also Relaxing Nervines
- Bugleweed (*Lycopus virginicus, L. europaeus*)

#### Diabetes Type II Specific Herbs
- Digestive bitters
- Blueberry (*Vaccinium spp.*)
- Burdock (*Arctium lappa*)
- Cinnamon (*Cinnamomum verum*)
- Devil’s Club (*Olopanax horridum*)
- Fenugreek (*Trigonella foenum-graecum*)
- Gymnema (*Gymnema sylvestre*)
- Maitake (*Grifola spp.*)
- Reishi (*Ganoderma lucidum*)

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**Recommended Herbal Books (‘indicates available through library loan system):**

*General Body System Information*
~ Herbal Medicine From the Heart of the Earth by Sharon Tilgner, N.D.
~ The Authentic Herbal Healer by Holly Bellebuono
~ Holistic Anatomy by Pip Waller
~ The Encyclopedia of Medicinal Plants by Andrew Chevallier*
~ The Complete Medicinal Herbal by Penelope Ody*
~ The Holistic Herbal by David Hoffmann*
~ Medical Herbalism: The Science and Practice of Herbal Medicine by David Hoffmann

*Endocrine System Specific*
~ Rogers’ School of Herbal Medicine Volume 7 - The Endocrine System by Robert Dale Rogers

**Online Resources**

Thyroid problems:


Rosalee on metabolic syndrome: [http://www.herbalremediesadvice.org/metabolic-syndrome.html](http://www.herbalremediesadvice.org/metabolic-syndrome.html)


Naturopathic Wellness Center on balancing the endocrine system naturally: [http://www.nawellness.com/balancing-the-endocrine-system-naturally/](http://www.nawellness.com/balancing-the-endocrine-system-naturally/)
