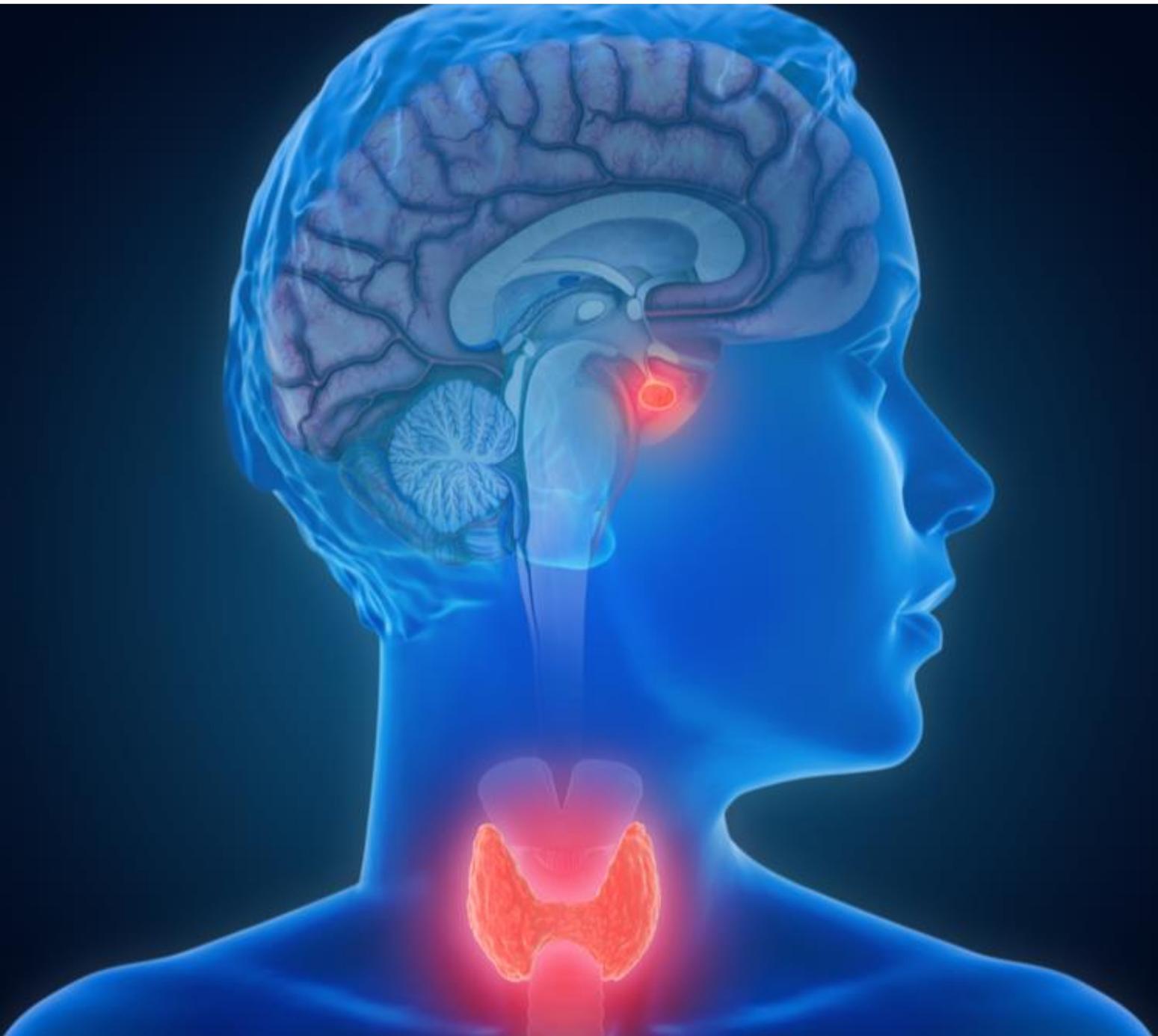


The Endocrine System

Immersion Bundle



Bundle Contents

0. Objectives at a Glance
1. Endocrine System Introduction
2. Pineal Gland
3. Hormonal Issues & Health

Objectives at a Glance



1. Endocrine System Introduction

Gain an understanding of the anatomy and physiology of the endocrine (glandular or hormonal) system.

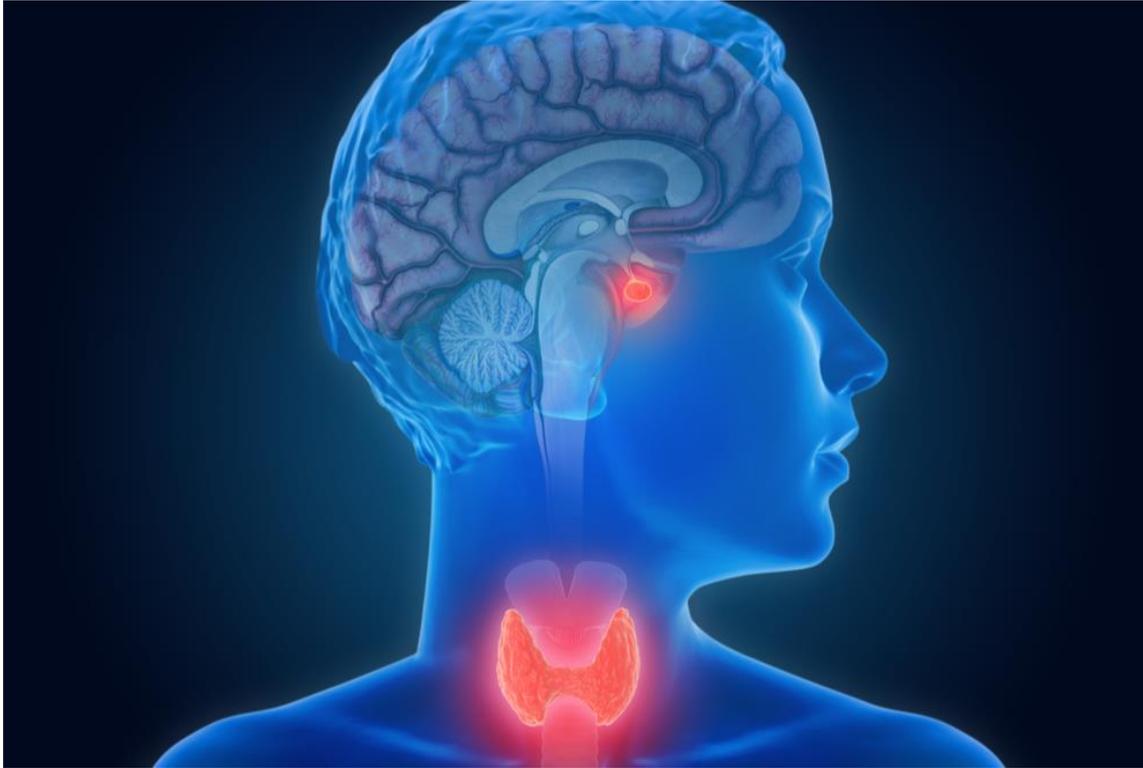
2. Pineal Gland

Become familiar with the anatomy and physiology of the pineal gland, plus its historical significance and connection to altered states of consciousness.

3. Hormonal Issues & Health

Be familiar with research and considerations related to hormonal issues and what supports endocrine health, including lifestyle factors and yoga.

Endocrine System Introduction 2.1



Lesson Overview

In this lesson, we introduce the anatomy (structure) and physiology (functions and relationships) of the endocrine system, also called the hormonal or glandular system.

Objective

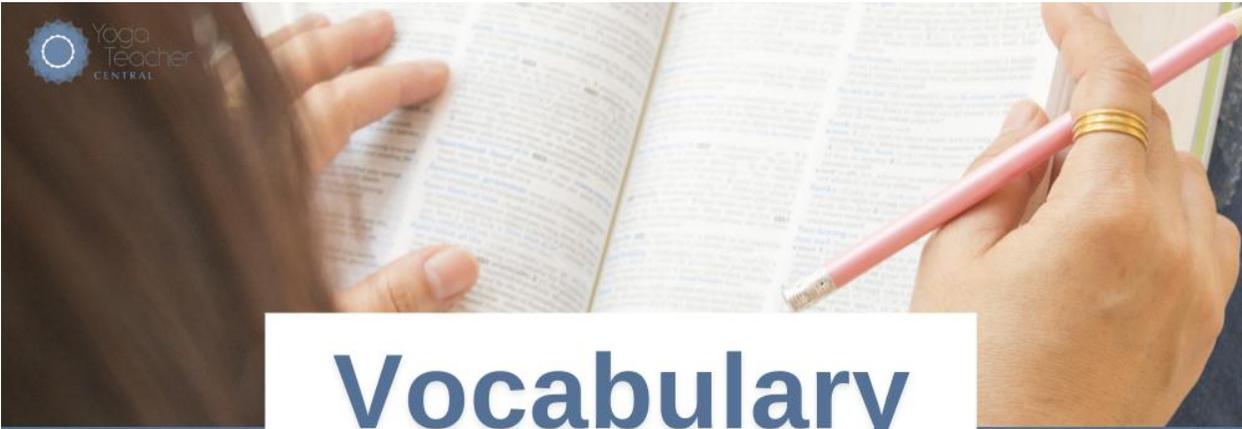
Gain an understanding of the anatomy and physiology of the endocrine (glandular or hormonal) system.

Description

Describe the endocrine system and define glands and hormones. Explain how the endocrine system and nervous system are similar and how they are different. Describe the hypothalamus, its location and the hormones it secretes. Explain the different ways in which various resources refer to the hypothalamus and its role in the endocrine system. List the primary endocrine glands from the head downward and describe the primary functions of each.

Vocabulary

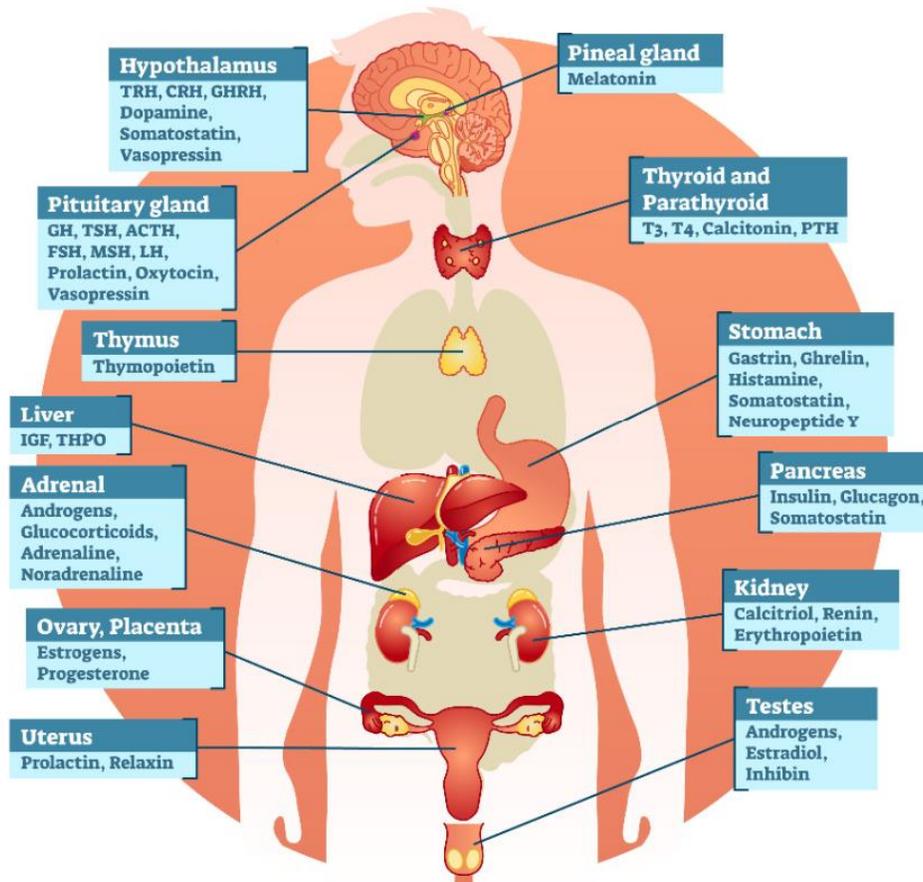
adrenal glands, endocrine system, glands, gonads, hormones, hypothalamus, pancreas, parathyroid, pineal gland, pituitary gland, thymus, thyroid



Vocabulary

1. **ADRENAL GLANDS** — Two small, triangular-shaped endocrine glands that release hormones including cortisol and adrenaline, impacting a range of functions including heart rate, blood pressure, immunity and managing physical stress responses
2. **DUCTLESS GLANDS** — Organs whose secretions are deposited directly into the blood, not to tubes or ducts
3. **ENDOCRINE SYSTEM** — Comprised of glands which release hormones into the bloodstream, “telling” the body how to function or grow
4. **GLANDS** — Organs that secrete something such as saliva, sweat, breast milk or hormones
5. **GONADS** — Reproductive or “sex glands”
6. **HORMONES** — Natural, complex chemicals that modify cells and affect many different functions, including respiration, metabolism, reproduction, sensory perception, movement, sexual development and growth
7. **HYPOTHALAMUS** — A part of the brain that links the nervous system and the endocrine system; serves as the control center for autonomic, endocrine, and motor function; secretes hormones including vasopressin, oxytocin and growth hormone
8. **MELATONIN** — A hormone produced from serotonin and secreted by the pineal gland in response to darkness; therapeutic for various diseases and sleep disorders
9. **PANCREAS** — Both a digestive organ (producing enzymes that serve digestion) and an endocrine organ (secreting insulin and glucagon which help to regulate glucose levels in the blood)
10. **PARATHYROID** — An endocrine gland associated with the amount of calcium in the body
11. **PINEAL GLAND** — Small, pine-cone shaped gland located near the center of the brain; secretes melatonin; associated with the third-eye
12. **PITUITARY GLAND** — Pea-sized gland located at the base of the brain, makes hormones that trigger growth
13. **THYMUS** — An endocrine gland with a primary role in immunity
14. **THYROID** — A butterfly-shaped endocrine gland located in the neck; associated with growth, energy, calorie-burning and heart rate

HORMONES



A “gland” is the name given to organs that secrete something such as saliva, sweat, breast milk or hormones

Endocrine glands are also known as the ductless glands because of the fact that their secretions are released directly into the blood, not to any tubes or ducts. ([source](#))

The endocrine system is comprised of glands which release hormones into the bloodstream.

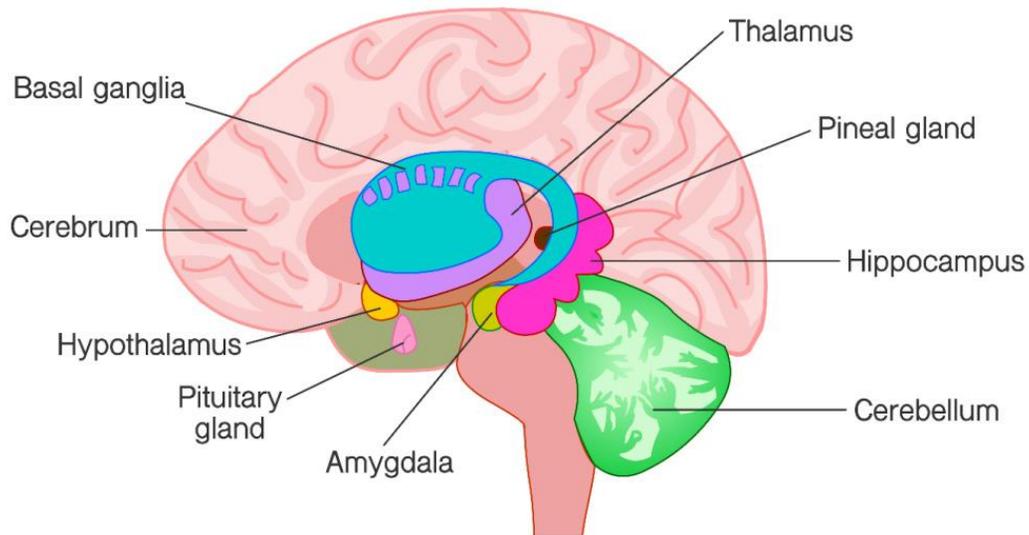
1. Hormones are chemicals that regulate bodily processes by sending signals to “tell” the body how to function or grow. (source) “Hormones are complex chemical structures that, by modifying the activities of particular cells that respond to them, eventually modify the body’s tissues and organs as well.” (Gary Kraftsow)
2. Hormones relate to many different functions, including respiration, metabolism, reproduction, sensory perception, movement, sexual development and growth.

The hypothalamus is a part of the brain that links the endocrine system and the nervous system. Both the nervous system and endocrine system are responsible for communication between organs and tissues, helping to regulate many bodily activities. While the nervous system communicates via neurons, the endocrine system uses hormones which travel through the circulatory system.

VARYING CONCENTRATIONS OF HORMONES IN CIRCULATORY SYSTEM

Unlike the nervous system where signals occur only in preexisting nerve tracts, the endocrine system’s hormonal signals can travel expansively throughout the circulatory system with relatively continuous yet varying effect depending upon the concentration of hormones (rather than being purely on/off). – **Mark Stephens**

Brain Anatomy



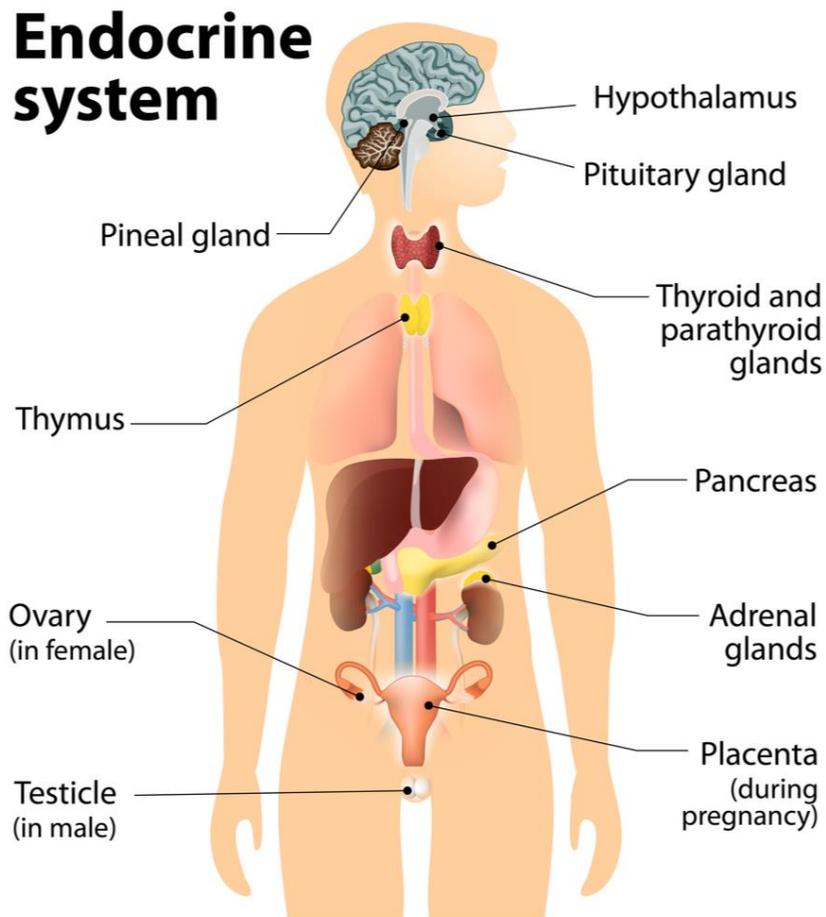
The endocrine system and the brain are intimately linked.

They share organs.

And they are in a feedback loop, with hormones as the messengers:

- Within the brain are the hypothalamus, pineal and pituitary glands — part of the endocrine system.
- Hormones are important messengers both within the brain and between the brain and the body. (brainfacts.org)
- The endocrine system and the brain are in a feedback loop, flowing from the brain to the pituitary gland to an endocrine gland and back to the brain.

The Hypothalamus



The hypothalamus is a part of the brain that links the nervous system and the endocrine system. “One of the major functions of the hypothalamus is to maintain homeostasis, i.e. to keep the human body in a stable, constant condition.” ([source](#))

While some sources include the hypothalamus in a list of primary endocrine glands, other sources refer to it separately, describing its critical role in endocrine system function but referring to it as part of the brain more often than referring to it as a gland. It does produce hormones like the other glands.

- The hypothalamus is about the size of a pearl or a pea.
- It’s located above — and attached to — the pituitary gland. ([source](#))
- It controls many autonomic functions of the peripheral nervous system.
- It’s related to body temperature, hunger, thirst, mood, sleep, sex drive and the release of hormones from other glands.
- It secretes hormones including vasopressin, oxytocin and growth hormone. ([source](#))

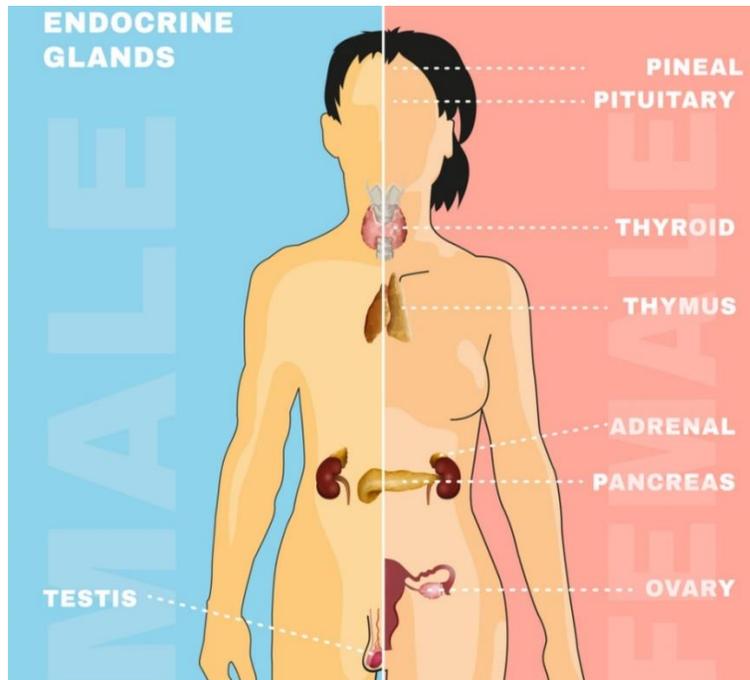
MAJOR PHYSICAL FUNCTIONING + EMOTIONAL RESPONSES

The hypothalamus is the control center for several functions [including] autonomic, endocrine, and motor function control. A number of important hormones are produced by the hypothalamus... These hormones act on other organs or glands in the body... As a limbic system structure, the hypothalamus also influences various emotional responses. – **ThoughtCo**

HYPOTHALAMUS STRONGLY RELATED TO APPETITE & FOOD INTAKE

An important aspect of hypothalamic autonomic control with regard to the endocrine system is the control of food intake. The effects of obesity on endocrine function can be widespread and endocrine abnormalities can cause obesity. A number of hormones play central roles in the control of food intake... Clinical Case 7.7 is an example of a patient in whom the appetite/feeding 'set-point' has been disturbed by neurological damage to his hypothalamus. – **S. Nussey and S. Whitehead**

Endocrine Glands



Aside from the hypothalamus, there are seven major endocrine glands located from the head downward in this order:

#1 Pineal Gland / Pineal Body

- Located near the center of the brain
- Very small, about the size of a grain of rice; shaped like a pine cone
- The reservoir for two hormones: melatonin and serotonin; melatonin is produced from serotonin in the pineal gland ([source](#))
- Melatonin is directly related to a person's sleep-wake cycle; when traveling across multiple time zones, it takes several days for melatonin to adjust to a new light-dark pattern
- Independent discoveries found the pineal to "possess all the essential features of the external eyes" ([source](#)); "contains rods and cones to process light... even though it's smack dab in the center of our 'dark' brains" ([source](#))
- See much more in [The Pineal Gland: Anatomy, Physiology & Altered States of Consciousness](#)

#2 Pituitary Gland

- Pea-sized, located at the base of the brain
- Makes hormones that trigger growth
- "Secretes eight different hormones involved in multiple processes including those that affect stress, growth, reproduction, blood pressure, thyroid glands and metabolism." ([Mark Stephens](#))
- "Maintains its anatomical and functional connections with the brain yet sits outside the blood-brain barrier." ([NIH](#))

#3 Thyroid & Parathyroid Glands

- Butterfly-shaped
- Located in the neck
- Both a growth and energy gland
- Secretes T4 or thyroxine, T3 and calcitonin (stimulating growth in children and increasing metabolic rate); “tyrosine and iodine are essential for the formation of these thyroid hormones” ([source](#))
- “The pace of energy absorption, production of proteins upon which metabolic processes depend, and the sensitivity of the body to other hormones are all under the commanding control of the thyroid.” ([Mark Stephens](#))
- The parathyroid gland is associated with the amount of calcium in the body
- “Supporting thyroid function is essential for promoting metabolism and aiding normal growth and neurological development. When thyroid health suffers, the ability of the whole body to maintain homeostasis is thrown off balance. The thyroid gland communicates with the adrenal, pituitary, and hypothalamus glands as well as the kidneys, liver and skeletal muscle.” ([source](#))

#4 Thymus

- Primary role in [immunity](#)

#5 Pancreas

- Approximately 15 cm long with a tapered shape resembling a quotation mark turned on its side
- Both a digestive organ (producing enzymes that serve digestion) and an endocrine organ (secreting insulin and glucagon which help to regulate glucose levels in the blood)

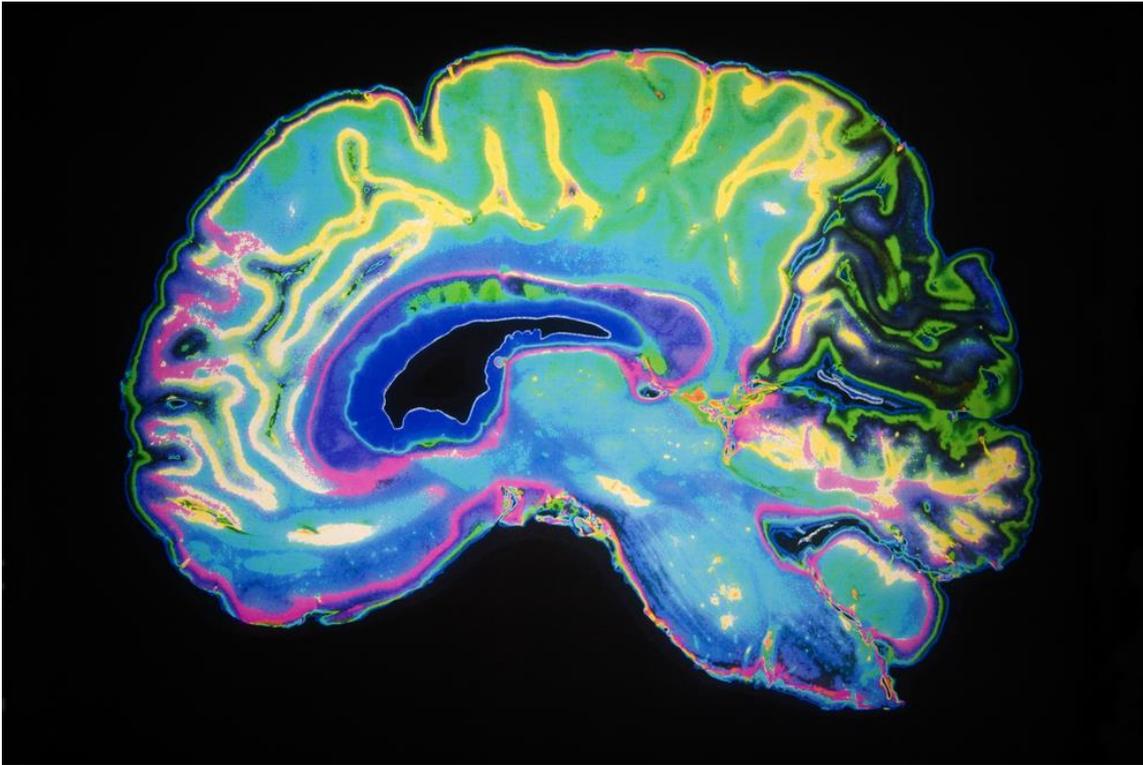
#6 Adrenal Glands

- Also known as suprarenal glands
- Two small, triangular-shaped glands that sit directly on top of the kidneys
- Release hormones that “impact a range of functions, such as regulating heart rate and blood pressure, helping the immune system, managing physical stress responses, and more” ([source](#))
- Produce cortisol in response to signals from the pituitary gland and hypothalamus (referred to as the hypothalamic-pituitary-adrenal axis, HPA axis)
- Other hormones they produce include adrenaline and noradrenaline, which can affect [heart rate and blood pressure](#)
- Imbalance in adrenal hormone production is called by such names as adrenal fatigue, Cushing’s syndrome and Addison’s disease

#7 Gonads

- “Gonads” are the reproductive or “sex glands”
- Ovaries in women secrete estrogen, testosterone and progesterone
- Testes in men produce testosterone and sperm

Pineal Gland 1.1



Lesson Overview

In this lesson, we explore the anatomy, physiology and significance of the pineal gland.

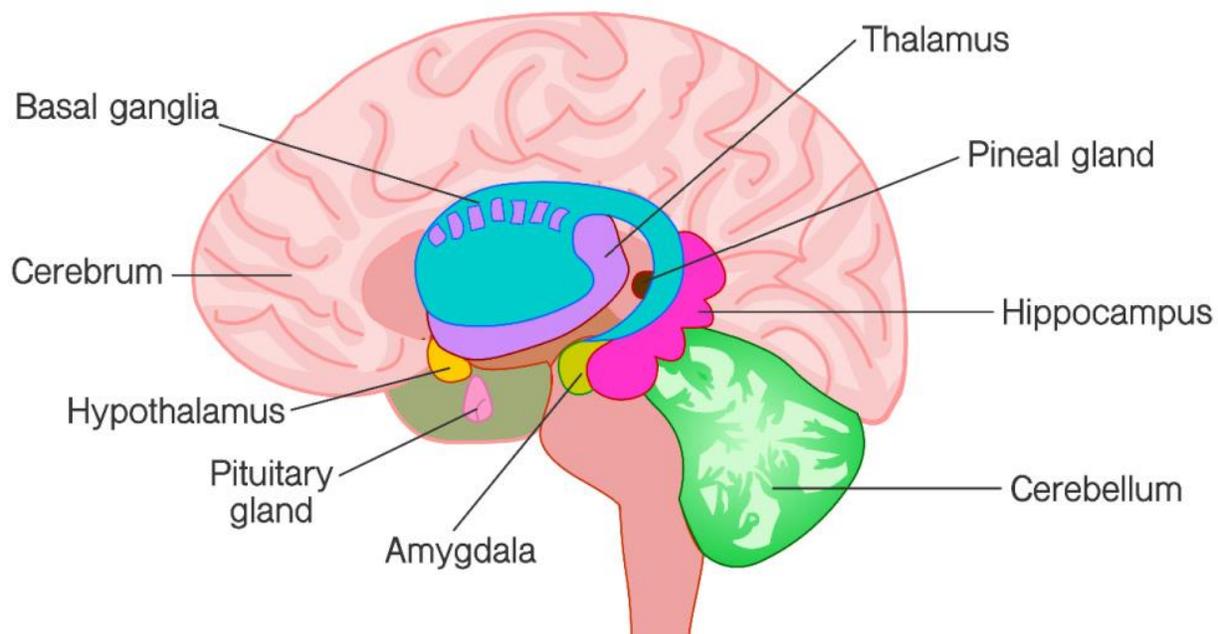
Objective

Become familiar with the anatomy and physiology of the pineal gland, plus its historical significance and connection to altered states of consciousness.

Description

Describe the physical characteristics of the pineal gland, including its unique isolation from the blood-brain barrier system. Explain the physiology of the pineal gland and describe what is currently understood about the role of the hormones, serotonin and melatonin. Describe ancient lore and the historical significance of the pineal gland; contrast this with modern science, which was ignorant of the gland's physiology but has recently become aware of what was already previously known by other sources. Explore the relationship between the pineal gland, the third eye or *ajna chakra*, and altered states of consciousness.

Brain Anatomy



The pineal gland is very small, about the size of a grain of rice and shaped like a pine cone. It's located near the center of the brain.

The brain is comprised of two distinct hemispheres connected by fibers. The pineal gland is located in the middle of the brain, in between the two hemispheres. – Gage Gorman

Although located in the brain, the pineal gland is uniquely isolated from the blood-brain barrier system, so that it can secrete hormones into the blood. As a result, it's vulnerable to toxins, including fluoride.

Independent discoveries have found the pineal to “possess all the essential features of the external eyes.” [\(source\)](#)

It contains rods and cones to process light... even though it's smack dab in the center of our “dark” brains. – Christina Sarich

OUTSIDE BLOOD-BRAIN BARRIER,
THUS, VULNERABLE TO TOXINS INCLUDING FLUORIDE

Due to its location outside of the blood-brain barrier — a necessary phenomenon since it secretes hormones into blood circulation — it has little protection against exposure to toxins such as fluoride, making it prone to mineralization. – GreenMedInfo Research, **More Fluoride Exposure Leads to Less Sleep**

RESEARCH STUDY CONFIRMS FLUORIDE ACCUMULATES IN THE PINEAL GLAND

Fluoride deposits accumulate in the pineal gland and calcify it. "This study has added new knowledge on the fate and distribution of fluoride in the body. It has shown for the first time that fluoride readily accumulates in the human pineal gland." – **Jennifer Luke**

PINEAL GLAND CALCIFICATION ASSOCIATED WITH SEVERAL CONDITIONS

This gland has one of the highest rates of calcification of all tissues in our bodies (7). Pineal gland calcification (PCG) is a hardening of the pineal gland's tissue that is associated with several conditions, including Alzheimer's, migraines, sleep disorders, and pediatric brain tumors. – **Lacey Gibson**

LOCATION USING MEDICAL TERMINOLOGY

[It] lies within the roof of the third ventricle, deep within the brain... The ventricles are fluid-filled spaces, and the third ventricle extends from the large lateral ventricles to the narrow cerebral aqueduct, passing between the two halves of the part of the brain called the diencephalon. It is located within an area called the epithalamus, just behind the thalamus and above the cerebellum, resting at the back of the brain, near the brain stem. There is a small fluid-filled pineal recess that projects into the stalk of the pineal body, allowing for the hormones it produces to more easily be diffused throughout the brain. – **Brandon Peters MD**

PRECISELY LOCATED?

[The pineal gland] is situated in the exact position of the Divine Proportion of the Golden Mean (.618 the distance on a line drawn from the front of the brain to the rear, and from the top of the skull to the bottom), behind and slightly above the level of the Pituitary Gland. – **Anthony Palomo**

Physiology & Melatonin

Melatonin & Sleep-Wake Cycles

The pineal gland stores and secretes melatonin.

- Whether it's actually the primary producer of melatonin is questionable. Many sources say that it is, including this 1965 Scientific American [article](#) and the following article.

Within the pineal gland, serotonin (which is derived from the amino acid called tryptophan) undergoes a transformation...to yield melatonin... The production of melatonin is impaired by light exposure." (verywellhealth.com)

- Other sources explain that it appears most melatonin is produced in mitochondria (journals.physiology.org) and almost all serotonin is produced in the intestines. (drjockers.com)
- Melatonin, and thus, the pineal gland is directly related to circadian rhythms (including [sleep-wake cycles](#)).
- The pineal gland requires periods of complete darkness to properly function. "Exposure to light reduces the ability of the rat pineal gland to synthesize melatonin and decreases the weight of the gland." (PubMed)

Serotonin & DMT

- “Serotonin is stored in large quantities by the pineal gland – a hormone you may have heard of since it is so keenly linked with feeling good. Without proper serotonin creation in the body, the result is depression, and sometimes *severe* depression. Of the 40 million cells in our brains, serotonin interacts or communicates with almost *all* of them.” (WakingTimes)
- The pineal gland is also associated with METatonin which includes DMT. (More details below.)

MELATONIN: THE HORMONE OF DARKNESS

Melatonin is a hormone secreted by the enigmatic pineal gland in response to darkness, hence the name *hormone of darkness*. It has generated a great deal of interest as a therapeutic modality for various diseases particularly sleep disorders. This pleiotropic molecule has anti-inflammatory, antioxidant and anticoagulopathic properties in addition to its endothelial protective effects. In this article we discuss melatonin secretion and mechanisms of action as well as therapeutic rationale. We also highlight the potential utility of melatonin in the deadly modern-day Ebola epidemic. – **Alina Masters et al**

RETINA TO PINEAL GLAND TO HYPOTHALAMUS, CREATING THE PACE FOR THE CIRCADIAN RHYTHM

[There is] a relay from the pineal gland to the suprachiasmatic nucleus (SCN), located in the hypothalamus. The SCN is of vital importance because this is the primary pacemaker for the circadian rhythm within the body, affected by the perception of light detected by the retina and sent along the retinohypothalamic tract. – **Brandon Peters MD**

Historical & Spiritual Significance vs. Modern Understanding



The impressive sculpture of a pine cone in Vatican City.

Ancient cultures understood the pineal body to be the master gland (“glandula superior” in Latin). Modern materialist scientists, on the other hand, remained ignorant of any role of the pineal body at all, only realizing in 1958 that it’s a functioning gland. (WakingTimes)

Identifying Symbols

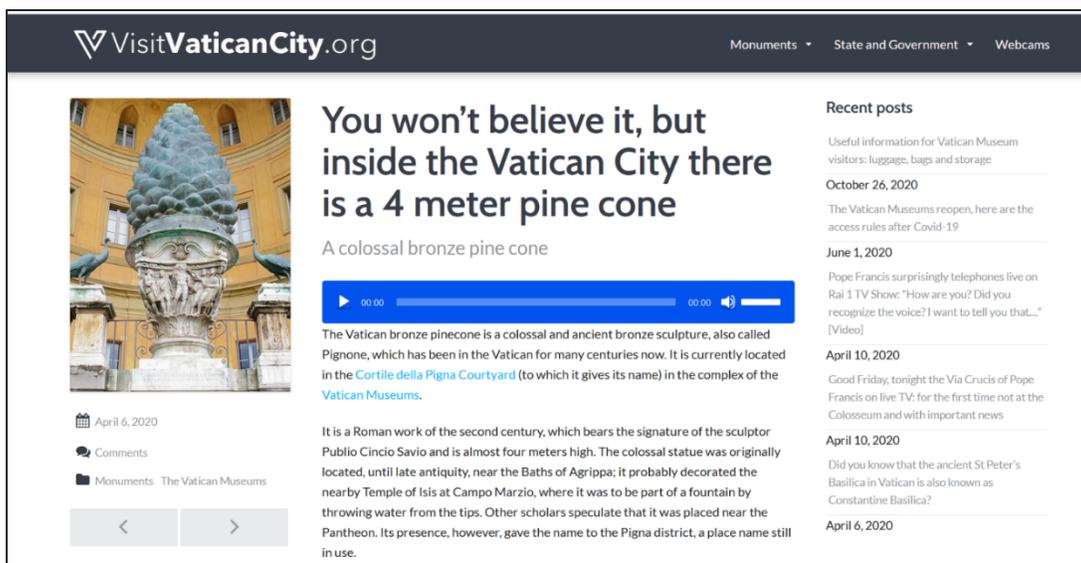
Modern people know that the pineal gland is shaped like a pine cone and ancient societies knew this, too. Indeed, the pine cone symbol is found in virtually all ancient and indigenous cultures throughout the world.

Egyptian, Druidic, Hindu, Hasidic, Islamic, Taoist, Mayan, Tibetan and Aboriginal cultures all acknowledge the pineal gland in their art and literature. Even the Catholic Pope’s staff often has a pine cone on it. – Christina Sarich

Yogis wisdom teaches that the pineal gland — associated with the ajna chakra or third eye — is part of an energetic system that includes two major energy channels, the ida and pingala nadis. These *nadis* spiral around the central channel (*sushumna*), crossing at every *chakra* and ultimately meeting at the third eye. Thus, the pineal gland (symbolized by the pine cone) is intimately correlated with the *ida* and *pingala nadis*, which are symbolized by serpents or two other identical animals standing opposite one another.

Thus, antithetical [standing opposite each other] animal art associated with the pine cone — twin elephants in Indonesia, twin peacocks in Rome, twin serpents in Egypt — is really an allusion to the *ida* and *pingala* channels (the antithetical twin serpents on the caduceus)... Many ancient cultures incorporated images of the pine cone into their spiritual art and architecture, and they all also created antithetical animal art. – Richard Cassaro

VisitVaticanCity.org Monuments State and Government Webcams



You won't believe it, but inside the Vatican City there is a 4 meter pine cone

A colossal bronze pine cone

The Vatican bronze pinecone is a colossal and ancient bronze sculpture, also called Pignone, which has been in the Vatican for many centuries now. It is currently located in the Cortile della Pigna Courtyard (to which it gives its name) in the complex of the Vatican Museums.

It is a Roman work of the second century, which bears the signature of the sculptor Publio Cincio Savio and is almost four meters high. The colossal statue was originally located, until late antiquity, near the Baths of Agrippa; it probably decorated the nearby Temple of Isis at Campo Marzio, where it was to be part of a fountain by throwing water from the tips. Other scholars speculate that it was placed near the Pantheon. Its presence, however, gave the name to the Pigna district, a place name still in use.

Recent posts

Useful information for Vatican Museum visitors: luggage, bags and storage

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The Vatican Museums reopen, here are the access rules after Covid-19

June 1, 2020

Pope Francis surprisingly telephones live on Rai 1 TV Show: "How are you? Did you recognize the voice? I want to tell you that..." [Video]

April 10, 2020

Good Friday, tonight the Via Crucis of Pope Francis on live TV: for the first time not at the Colosseum and with important news

April 10, 2020

Did you know that the ancient St Peter's Basilica in Vatican is also known as Constantine Basilica?

April 6, 2020

MODERN SCIENTISTS THOUGHT THE PINEAL GLAND HAD NO FUNCTION

Until recently the scientific community regarded the pineal gland as having no function in man, being but a vestigial remnant from an earlier stage in evolution. However, in the last few years interest in the gland has reached a climax when no fewer than ten national and international conferences devoted entirely to unraveling the secrets of the mysterious pineal have been held around the world. – **Dr. Swami Karmananda Saraswati**

THE PINEAL IS WITHIN A HALLOWED SPACE CALLED THE CAVE OF BRAHMA

Between the two hemispheres of the brain, below the posterior portion of the corpus callosum — the thick tissue connecting the two lobes of the cerebrum which hover over this inner sanctum like two arched wings — is a hallow space called the "Cave of Brahma." In this cavity... is a small protuberance called the Pineal Body, or *epiphysis cerebri*. Its pinecone shaped head, from which it derives its name, points back toward the "arbor vitae" (tree of life) of the cerebellum in the occipital cavity of the cranium. – **Anthony Palomo**

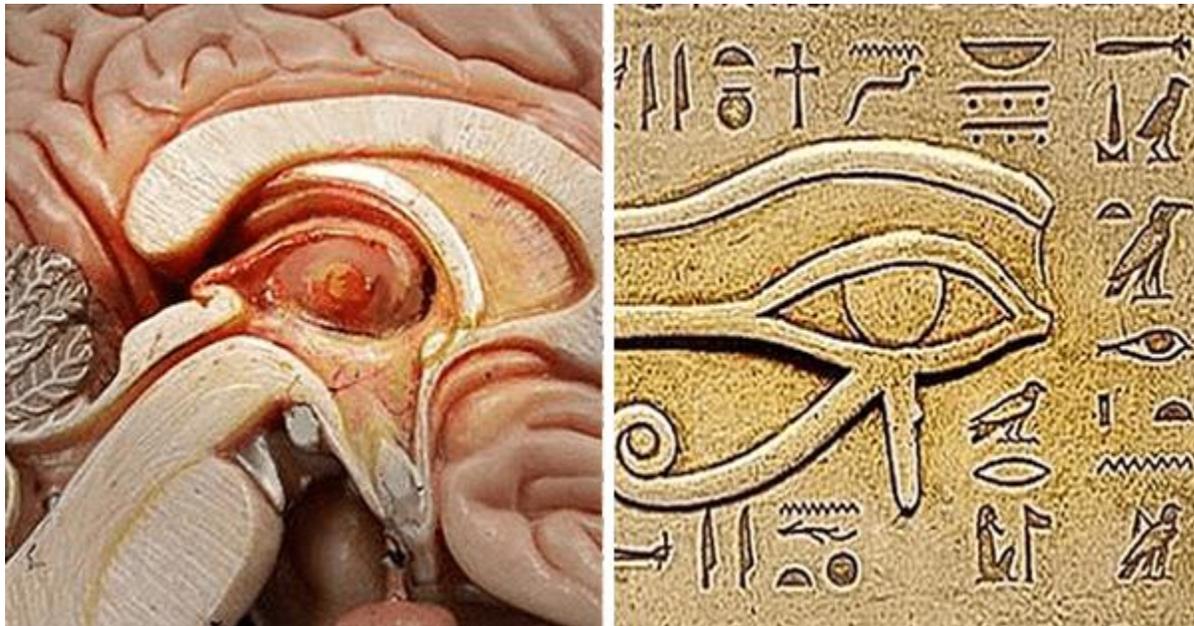
THE CAVE OF BRAHMA: WHERE YOGIC EVOLUTION TAKES PLACE

The Sushumna channel in the spinal cord is the highway through which the Kundalini energy travels and the evolution of consciousness takes place. Kundalini... (a bioelectric force) lies as light/sound vibrations at the root of the spinal cord. To avail of it for one's own evolution and realization is the birthright of every human soul. As the ... Yogi progresses in meditation, the third eye opens up to increasing levels of consciousness, until he arrives at the Cave of Brahma, the brain's third ventricle. Then his awareness expands beyond the "l-ness" of humanity to settle in the lateral ventricles of the brain... The mighty Hamsa Soul then wins its wings to freedom. As the subtle fibres of his corona radiata light up with divine effulgence, he takes flight into cosmic consciousness. – **Yogiraj Siddhanath**

THE PINE CONE ALLUDES TO SPIRITUAL ILLUMINATION

The pine cone alludes to the highest degree of spiritual illumination possible. This was recognized by various ancient cultures, and the symbol can be found in the ruins of the Indonesians, Babylonians, Egyptians, Greeks, Romans, and Christians, to name a few. It also appears in the drawings of esoteric traditions like Freemasonry, Theosophy, Gnosticism, and esoteric Christianity. The pine cone held the same meaning for all: It symbolized a secret vestigial organ, the pineal gland or "Third Eye," that we all possess. – **Richard Cassaro**

Third Eye & Altered States of Consciousness



"Side-by-side comparison of a cross-section of the brain where the pineal is located and the Eye of Ra." (Gaia)

Art still carries the potent teachings... Consider the Eye of Horus — a literal depiction of the pineal gland resting inside the human brain. The Egyptians, Mayans, Kahunas, and others are still showing us the traditional ways to work with our third eye, if we can decipher the ancient cues. – Andye Murphy

Third Eye

We know, of course, that the pineal gland is associated with the third eye. Interestingly, the pineal body possesses all the essential features of the external eyes.

In 1886 two micro anatomists, H.W. De Graff and E. Baldwin Spencer, independently discovered that the pineal is a rudimentary eye, possessing all the essential features of the external eyes with pigmented, retinal cells surrounding an inner chamber filled with a globular lens like mass. Subsequent research has proved that the gland actually responds to environmental light, both directly and via the nervous pathways from the external eyes. It is surely beyond a coincidence that the yogic texts of India and the mystical traditions throughout the ages have spoken of the 'eye of intuition' and the 'third eye' when referring to the pineal gland. – Christina Sarich

The third eye has been a major focus of ancient wisdom keepers and spiritual seekers, including yogis.

Readers familiar with Eastern religions will recall the Third Eye as having a long history in India, China, and Southeast Asia, where the religious traditions of Hinduism, Buddhism and Taoism hold sway. More than a "religious" idea, the Third Eye is a... spiritual custom that transcends religions. It is known variously as "urna" and "trinetra," and often marked by a dot in the middle of the forehead between the two eyes. – Richard Cassaro

Seat of the Soul, Spirit Molecule & Altered States

The pineal gland has been famously called the Seat of the Soul by Rene Descartes. Recently, it has come to be associated with DMT, which has been called the Spirit Molecule.

Several recent assertions connect dimethyltryptamine (DMT) to the pineal gland. DMT is a naturally occurring substance that brings vivid visuals and profound psychic encounters. It's the doorway to God from within, and is the subject of much excitement... If the pineal is the seat of the soul, it is only too fitting that DMT lives there, too. – **Andy Murphy**

See information below to learn more about the research that uncovered the profound importance of the brain's levels of serotonin and how the pineal gland regulates the chemistry of altered states of consciousness. The author makes the extremely powerful proposal that "The ropes which prevent [our] perception of a reality in which [we are] infinite seem to be the levels of serotonin within [our] own brain tissues!"

- The "ordinary waking state" or "rational" state of consciousness is associated with gamma and beta brain waves and narrow perceptual ranges, providing a limited experience of reality. Modern, mainstream sources present a narrative where this state is "ordinary" or "normal" but that is not correct. Alpha, theta and delta brain wave states are just as normal.
- And let's be clear: It is not during the faster brain wave states that people have awakening experiences. Rather, it is "altered states" of consciousness that are associated with consciousness expansion.

So, whether or not the phrase "altered states" has been used to refer to experiences from taking substances or have been associated with "escape" in some paradigms, it is also the phrase used to refer to natural, organic experiences associated with the third eye that enable everyone to personally have deeper experiences of a greater reality than the narrow one accessible to the five senses.

Researcher Michael Tellinger suggests that poor pineal gland functioning (due to fluoride calcification, for example) stunts third eye sight, leading to an inability to know deeper truths from personal experience.

Michael Tellinger discusses the use of mysterious artifacts found at pyramids and stone circles all over the world which have baffled even the most learned of scholars. But if we remember the role of sound in ancient technology, the use of these tools becomes obvious. These scholars cannot be blamed for their lack of understanding... A stunted... pineal gland leaves many people unaware of the universal secrets that would have been otherwise apparent. – Gaia

Some sources describe the pineal gland as being a portal or stargate between the physical and spiritual world, enabling astral travel and remote viewing.

THIRD EYE CHAKRA

The pineal gland is known as the third eye chakra, or *ajna chakra* in the Hindu system. A closed *ajna* is said to lead to confusion, uncertainty, cynicism, and pessimism. Every esoteric tradition heralded the third eye as our connection to spirit. It's the space between humans and God, moving us from the isolation experienced in the human condition. Through an open and vibrant third eye, we find our highest source of ethereal energy. A return path to God is offered when one works to expand third-eye awareness. – **Andye Murphy**

AWAKENING THE AJNA CHAKRA TO EXPAND OUR STATE OF CONSCIOUSNESS

We need not be prisoners of our own brain biochemistry... We can expand our state of consciousness by reactivating the pineal gland, awakening the ajna chakra, opening the third eye — they are all the same process. In this way we regain contact with the child within while simultaneously fulfilling the duties and responsibilities of adult life. Then work becomes play and life a game, rather than the serious and depressing business it has become for many people today. – **Dr. Swami Karmananda Saraswati**

SEROTONIN & ALTERED STATES OF CONSCIOUSNESS

The central role of serotonin was established a short time after the accidental discovery of LSD-25. Minute quantities of this substance, were found to cause profound alterations in consciousness, inducing states ranging from deeply felt religious and mystical experiences to paranoia and schizophrenia... Gaddum of Edinburgh University discovered that the alterations in consciousness induced by LSD-25 are not due to a direct effect on the brain tissues by that drug, but rather that LSD-25 deprives the brain of serotonin by blocking off its sites of action... This means that the brain's levels of serotonin is profound [and] the pineal gland is the physical medium which regulates the chemistry of altered states of consciousness... It is clear that man is imprisoned in his mundane, everyday state of consciousness... It is so effectively harnessed that he cannot even perceive the possibility of higher awareness and experience. The ropes which prevent his perception of a reality in which he is infinite seem to be the levels of serotonin within his own brain tissues! – **Dr. Swami Karmananda Saraswati**

PINEAL LINKED TO DMT, SEPARATING EGO-IDENTIFICATION WHILE REMAINING AWARE

The pineal is also directly linked to the creation of METAtinin – a close cousin of melatonin, sometimes called a “high octave melatonin.” The main psychoactive ingredient in METAtinin is DiMethyl Tryptamine or DMT. DMT, as talked about extensively by Terence McKenna and Rick Strassman MD, is thought to be responsible for many people's out-of-body (OBE) experiences, yet the scientific data on these is rare and in its infant stages. The Cottonwood Research Foundation of New Mexico found that the pineal gland of rodents does indeed produce endogenous [originating internally] DMT. (Rodents and humans have a very similar cellular structure and that is why they are used for endocrine research.) METAtinin does not suppress waking self-consciousness the same way melatonin does during sleep; instead it... temporarily reprograms our brain circuitry in a way which allows self-consciousness (ego-identification) to separate from the body consciousness while remaining aware. – **Christina Sarich**

THE SEAT OF THE SOUL & THE SPIRIT MOLECULE

I was drawn to DMT because of its presence in all of our bodies. I believed the source of this DMT was the mysterious pineal gland, a tiny organ situated in the center of our brains. Modern medicine knows little about this gland's role, but it has a rich metaphysical history. Descartes, for example, believed the pineal was the 'seat of the soul' and both Western and Eastern mystical traditions place our highest spiritual center within its confines. – **Rick Strassman, MD**

PERSONAL STARGATE

It links us to Spirit, it allows us to see clearly and authentically, and it translates other density information between our multiple selves in multiple densities. The Pineal gland is our personal stargate, meaning we can travel to other places on this planet and to other places in the universe.

– Gage Gorman

PORTAL FOR ASTRAL TRAVEL & REMOTE VIEWING

The pineal gland is considered as a way of traveling between dimensions, referred by many as astral projection or remote viewing. Interestingly, remote viewing has been researched by the government. In fact, Stanford Scientists observed [Ingo Swan] 'Travel Outside his Body' & into Space. He was able to accurately view and describe a ring around Jupiter, a ring that scientists had no idea even existed until the Pioneer 10 spacecraft flew past Jupiter [six years later]. – **Ancient Code, The Pineal Gland: One of the Biggest Secrets Withheld from Humanity**



[7.5min video](#)

Hormonal Issues & Health ^{1.1}



Lesson Overview

In this lesson, we explore hormonal issues and conditions, and how yoga supports endocrine health.

Objective

Be familiar with research and considerations related to hormonal issues and what supports endocrine health, including lifestyle factors and yoga.

Description

List factors that can affect endocrine system and thyroid functioning, plus common symptoms of endocrine issues. Explain how Endocrine Disrupting Chemicals affect the body's physiology. Note conditions that are associated or caused by endocrine issues, such as diabetes. Discuss fluoride toxicity. Cite research on the impact of yoga on endocrine health and hormonal balancing. Describe yoga practices that support hormonal regulation. Explain other factors that are key to cultivating endocrine system health including lifestyle factors, sunlight and nutrients.

Factors Affecting Endocrine Health

Factors that affect the endocrine system include:

1. Fluoride
2. Endocrine-disrupting chemicals
3. Pharmaceuticals
4. Stress
5. Diseases and conditions
6. Aging

ENDOCRINE DISRUPTING CHEMICALS (EDCS)

EDC's are capable of blocking or mimicking the activity of natural hormones in your body... The way that your hormones work is similar to a lock and key system. Your cells have receptors that are specifically designed for certain hormones (just like locks are designed for specific keys). The hormones, therefore, are the keys that can dock to these receptors and initiate a cascade of activity. Endocrine Disrupting Chemicals come in and create havoc because they are similar in structure to your hormones. Therefore, they can dock on the same receptors and initiate activity, just like your hormones would. The problem is, they are not part of your natural hormonal system. These endogenous compounds come in and throw the homeostasis of your tightly regulated hormonal system out of whack, and the result can range from resistant weight loss, obesity, reproductive harm and infertility, lowered hormone production and more [3][4]... Research shows that exposure to EDC's can promote insulin resistance, which in turn can increase the risk for obesity as well as other metabolic conditions marked by increased levels of uncontrolled blood sugar[5]. – **Wendy Myers**

PHARMACEUTICALS

Beta-blocking medications that are used to treat hypertension, tachycardia, and heart disease may interfere with the normal release of melatonin. – **Brandon Peters MD**

Thyroid Health

Thyroid health in particular has been found to be affected by the following factors.

Numerous factors contribute to the decline of thyroid health. Environmental and physiological influences that play a role may include:

- Heavy metal contamination
- Pesticide, herbicide and other environmental toxins
- Gut dysbiosis
- Hormonal fluctuations
- Drugs such as antibiotics
- Lack of nutrients possibly associated with malnutrition, poor diet, or decreased nutrient absorption from related disorders like IBS (irritable bowel syndrome)
- Chronic infections possibly due to autoimmune problem or high stress
- Carcinogens from diet such as meat cooked at high temperatures or lifestyle factors like smoking
- Alcohol intake
- Poor sleep habits

– **Dr. David Jockers**

Symptoms & Related Conditions

Symptoms

Disorders that derive from the endocrine system... are [usually] linked to abnormal hormone production, either excessive (hyper) or deficient (hypo), and any other system can be damaged as a result of such imbalance... Conditions of chronic, excessive hormonal production often involve a pathological and tumorous condition... people with serious hyper-functioning endocrine conditions are advised to be under the care of a health professional. Conditions of chronic, deficient hormonal production are more common. – Gary Kraftsow

Common symptoms of deficient endocrine function include the following. (Gary Kraftsow)

- Fatigue
- Depression
- Low energy
- Muscular weakness
- Chills
- Dry skin
- Low body temperature
- Low blood pressure
- High cholesterol levels
- Low blood sugar
- Weakened immunity

SYMPTOMS OF HORMONAL IMBALANCE

Yoga U Online: Your work with yoga programs targeting the endocrine system led you to teach a program on Yoga for Hormonal Health. If someone had the suspicion that they might have hormonal imbalance, what would be some of the indicators?

Lynn Jensen: Some things to ask yourself: Do I have mood swings? Do I have a lot of time where I'm feeling anxious, low, negative? Am I having trouble sleeping? Some glands in the endocrine system are specifically impacting your sleep cycles, such as the pineal gland in the back of the head. Hormones are extremely powerful actors in the body, so when any of them are out of balance, they can impact a very big range of systems and processes in the body. Mood swings, PMS, insomnia, weight gain, anxiety, depression, and poor immune function can all be related to hormonal imbalance. – YogaUOnline, **Yoga for Women's Health: Restoring Hormonal Balance**

Related Conditions

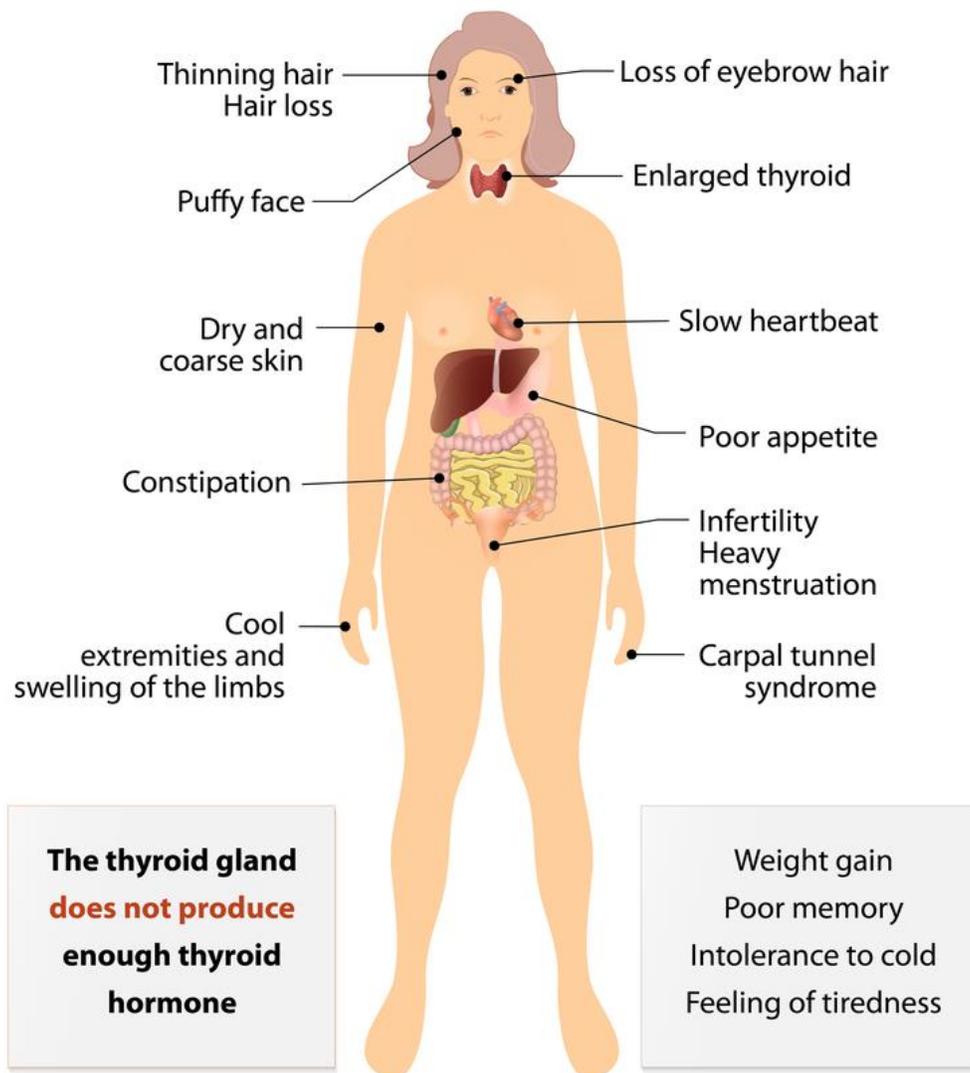
Conditions associated with endocrine issues include:

- Adrenal disorders
- Diabetes
- Thyroid disorders
- Seasonal Affective Disorder (SAD) (verywellhealth.com)
- Sex hormone disorders
- Some weight-related conditions

DIABETES IS CAUSED BY A LACK OF INSULIN,
A HORMONE PRODUCED BY THE PANCREAS

Diabetes is a disease of the endocrine system, the system in our bodies responsible for producing and distributing hormones. It is caused by a lack of insulin, a hormone produced by the pancreas, or the ineffective action of insulin in the body. In type 1 diabetes, the pancreas stops producing insulin.... In type 2 diabetes, the pancreas is still producing insulin but the body is resistant to the insulin and does not use it effectively. – Larry Payne PhD & Richard Usatine MD

Symptoms of HYPOTHYROIDISM



Fluoride Toxicity

FLUORIDE ACCUMULATES IN THE PINEAL GLAND, NEGATIVELY AFFECTING ITS FUNCTIONING

British scientist Jennifer Luke published a study showing that fluoride deposits accumulate in the pineal gland and calcify it... The pineal gland can become 'hardened' through calcification, but to our greatest detriment... Additionally, a 450 page review on fluoride toxicity published by the National Research Council in 2006 reported that fluoride produced a range of negative side effects including "decreased melatonin production" and "other effects on normal pineal function, which in turn could contribute to a variety of effects in humans." – **Christina Sarich**

HOW TO AVOID TOXIC FLUORIDE

Fluoride has dozens of adverse effects on human health. Aside from its role in altering sleep and the pineal gland, fluoride is neurotoxic and may harm heart health, fertility and the brain. Conditions linked to fluoride include cognitive dysfunction, low and impaired IQ, cancer, kidney disease, diabetes, endocrine disruption, thyroid disease, heart disease and fluoride toxicity.^[xii] In the U.S., more than 70% of water supplies are fluoridated, which means you're exposed every time you drink from the tap.^[xiii] About 39% of Canadians also receive fluoridated water.^[xiv] If you live in an area with fluoridated water, install a filter that removes fluoride, which include:^[xv]

- Reverse osmosis
- Activated alumina
- Deionizers that use ion-exchange resin

Alternatively, spring water also tends to be very low in fluoride. Other common sources of fluoride to watch out for include:[xvi]

- Nonstick cookware that contains chemicals such as PFOA and PTFE
- Infant formula mixed with fluoridated tap water; foods and beverages produced with fluoridated tap water
- Fluoride-containing drugs such as many antidepressants and statins
- Grape juice and wine made from conventionally grown grapes, which are often treated with fluoride pesticide, cryolite
- Fluoridated toothpaste and fluoride gel treatments at the dentist

Your body has no inherent need for fluoride — it's far from an essential nutrient.^[xvii] So the lower your exposure, the better your overall health will likely be. – **GreenMedInfo Research, More Fluoride Exposure Leads to Less Sleep**

Endocrine Health & Yoga



Endocrine system health is associated with overall good health and healthy lifestyle practices around food, sleep and exercise. (Yoga Therapy: Foundations, Methods, and Practices for Common Ailments by Mark Stephens)

Yoga practices that support endocrine health include breath, *asana*, sound and meditation.

A research summary in the Journal of Yoga & Physical Therapy suggests that yoga has a positive impact on the endocrine system via hormone regulation. As YogaUOnline describes [here](#), the research showed:

- A decrease in cortisol (related to feelings of well-being and pain management)
- Elevated serotonin
- The release of oxytocin during visualization, and
- Higher levels of melatonin (related to sleep quality and immunity)

LIFESTYLE, BREATH, MOVEMENT, SOUND & MEDITATION

The Yoga theory for working with any condition involving hypo-functioning is to first consider appropriate lifestyle changes, including taking time for relaxation, modifying diet, and reducing stress... In addition, we can use the Yoga techniques of breath, movement, sound and meditation.
– Gary Kraftsow

POSES AFFECT GLANDS OF THE ENDOCRINE SYSTEM & ARE ASSOCIATED WITH CHAKRA BALANCING

Yoga is extremely helpful with hormonal imbalances because of its design. In fact, every time you're doing a yoga pose, you are working on at least one of the glands in the endocrine system, and usually more than one. Part of the reason is because yoga is designed to work on the *chakra* system, and when you look at the *chakra* system next to the endocrine system, they are exactly lined up. – Lynn Jensen

More Resources & Support



LIFESTYLE CHANGES

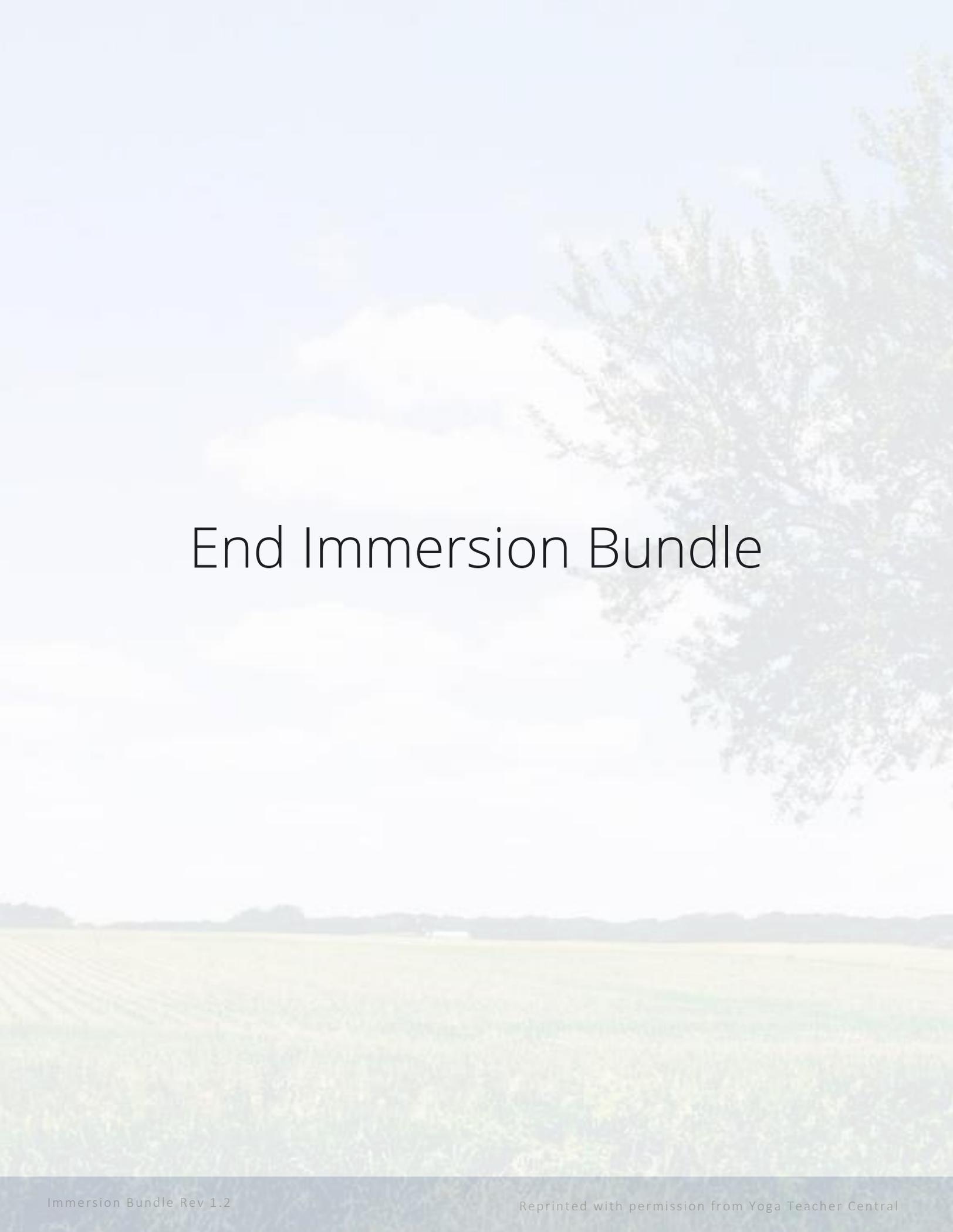
Improving your overall lifestyle by reducing stress, making exercise a priority and practicing relaxation techniques can help restore your health. Avoiding toxic habits and carcinogens in your life can reduce the amount of stress on the thyroid and its supporting organs and glands. Such lifestyle improvements will benefit your gastrointestinal tract helping your body naturally absorb more of the powerful thyroid-supporting nutrients you are taking in. Making these natural changes to improve your thyroid will prevent you from seeking prescriptive medication that can impair your health. – **Dr. David Jockers**

PLENTY OF SUN EXPOSURE

Many people are not aware that only 5% of your body's melatonin — a potent anticancer agent — is produced in your pineal gland. The other 95% is produced inside your mitochondria — provided you get proper sun exposure. So, vitamin D is more than likely a biomarker or surrogate for sun exposure, which is intricately involved in melatonin production.²⁷ During the day, if you get enough sun exposure, near-infrared rays from the sun penetrate deep into your body and activate cytochrome c oxidase, which in turn stimulates the production of melatonin inside your mitochondria. Your mitochondria produce ATP, the energy currency of your body... So by getting plenty of sun exposure during the day, your mitochondria will be bathed in melatonin, thereby reducing oxidative stress^{28,29} and offering a host of health benefits. In short, while vitamin D is important, for optimal health and longevity strive to get it from the sun, not by swallowing it. – **Dr. Joseph Mercola**



10 Nutrients to Improve Your Thyroid – [21min video](#)



End Immersion Bundle