The Story of a Living Temple
A Study in Human Anatomy

By Fredrick M. Rossiter

Self-Study Guide

By G. E. Carlin

Self- Study Guide Introduction

"*Devotional exercises are a powerful means of putting us in tune with the Christ. Through them we gain an intuitional faculty whereby we feel the suffering of others, and at the same time we find the way to ease their pain* … [After the Bible, we can utilize any book] *of a thoroughly devotional nature*, *then turn to the* ***study of the human body, for a knowledge of anatomy is an absolute essential****. The body is the temple for the indwelling Spirit, and as it is necessary for an architect to know how to prop up the pillars of a church, when the wear and tear of time have caused the foundation to crumble, so that new material may replace that which has decayed to make the edifice strong and useful again, so also must we know how to strengthen the various parts of the living temple with which we are to deal. There is a book called* ***The Story of the Living Temple, by Rossiter****, which treats of the body in a spiritual manner and will service admirably as an aid to a higher conception while using the ordinary textbooks*."

– **Max Heindel, Occult Principles of Health and Healing**

As Rosicrucians it is essential that we not only think of our bodies as temples but we need to make certain that we treat them like "*living temples*" in all ways. Therefore, as Max Heindel asserts we must have an understanding of our physical bodies. Although this understanding should start with a basic understanding of anatomy and physiology or structure and function, it also needs to extend beyond this to a spiritual understanding of the body and its many parts. While in addition, it must also address the science of nutrition so we best understand how our diet can help us to build a healthy temple that can most efficiently maintain its health over time as we age, and understand what and how to provide as the best building materials for both our physical and spiritual bodies. For if we choose to work in the *Rosicrucian Fellowship Healing Center* this information will be essential to our healing work so that we may use it to best serve and train others in their time of need.

Perhaps, what is most special about *The Story of the Living Temple*, is that provides the ongoing metaphor of the body being a living temple and how all the parts of the human body can be reflected by the various parts and structures of a nonliving temple. The author, Fredrick M. Rossiter, as a doctor and a teacher has a clear goal in mind in writing this book, as he wants "*The young mind … to regard the human building as a masterpiece of creation, a beautiful structure, worthy of the most profound admiration. [So that] every young person who comes to a clear perception of the true relation of body to mind and mind to body, must ever after hold his health as sacred as his character*."

Health is simply nature's music,
Sweet diapason without flaw,
Chorus of happiness eternal,
Full harmony of life with law.
- Mary Henry Rossiter

We must however be mindful that this book was originally published in 1902, so while most of the anatomy and physiology is in alignment with today's beliefs and understandings there are some aspects such as anatomical names that have changed over time, new research that has established better understandings of specific physiology of various body structures, revised concepts and applications in the science of nutrition, etc. Which is why I believe that Max Heindel also encouraged the study of Anatomy & Physiology "*using the ordinary textbooks*", especially those textbooks that are current for your time of study. Yet, where *The Story of a Living Temple* will never become outdated is how the author presents the content of anatomy and physiology through a spiritual lens. Therefore, the spiritual aspirant might consider this book alone as a course in the spiritual aspects of anatomy and physiology, but it is also imperative that we should concern ourselves with a true scientific understanding of both *Anatomy & Physiology* and the *Science of Nutrition* if we truly wish to develop and maintain our bodies as a suitable temple for the indwelling Spirit.

Structure of the Self-Study Guide

A .pdf file for *The Story of a Living Temple* can be found at:

https://ia601309.us.archive.org/34/items/cu31924024794012/cu31924024794012.pdf

For each chapter of *The Story of a Living Temple* there is a Scripture quote, questions taken from the chapter text, and in some cases additional Scripture quotes, quotes taken from Max Heindel, and/or related pictures or scientific diagrams.

The first two chapters of the book deal with establishing the metaphor for your body as a living temple, while the remaining chapters I have grouped into specific body systems and the science of nutrition:

The Body as a Living Temple
1. Yor Body a Temple
2. The Wonders of the Temple

Integumentary System
3. The Outside of the Temple
4. How the Wall of the Temple can be a Living Wall
5. Touch Cells and the Living Wires
6. How to Keep the Wall Beautiful

Nervous System: *The Special Senses*
7. The Pathway of Taste
8. The Pathway of Smell
9. The Windows of the Temple
10. A Living Camera
11. The Pathway of Sound

12. The Entrances of the Temple

The Nervous System: ***Brain, Spinal Cord, Autonomic Nervous System***
13. Your Sanctum Sanctorum
14. The Brain Workers
15. What Brain Workers Do
16. How Brain Workers are Trained
17. The Sympathetic Workers
18. How to Take Care of the Nerve Workers

The Cardiovascular System
19. The Living Fountain
20. The Stream of Life
21. The Course of the Stream

The Respiratory System
22. The Antechambers
23. Breathing Room
24. The Breath of Life

The Digestive System
25. The Living Canal
26. Where Building Materials Are Mixed
27. Winking Valves and Living Pumps
28. The Inner Door

The Muscular System
29. The Muscle Workers

The Skeletal System
30. The Living Framework of the Temple

The Science of Nutrition
31. The Bread of Life
32. Good Building Materials
33. Apples of Gold and Nuts of Silver
34. Poor Building Materials
35. A Terrible Enemy to the Little Workers
36. Thieves and Murderers
37. The Sum of the Body
38. The Beauty of the Temple

Anatomy & Physiology Textbook Studies

In order to supplement your self-studies of *The Story of a Living Temple* you should also acquire a high school or college *Anatomy & Physiology* textbook.

For each of the Body Systems addressed in *The Story of a Living Temple* (Integumentary, Nervous: Special Senses, Nervous: Brain, Spinal Cord, and ANS, Cardiovascular, Respiratory, Digestive, Muscular, and Skeletal) there is an "***Explore the* [Specific Body System]**" outline (objectives and questions) provided to help guide your independent studies. However, it is *not* necessary to cover all items in the outlines at one time. Work with those you are comfortable with at a level that is appropriate for yourself. Then over time continue to come back and find ways to increase your depth of study.

There is also a list of "***Medically-Related Terms***" that are directly related to the specific system in the outline. It will be helpful to select some of these terms in studying the system as this will allow you to see the application of the given content. It will be especially helpful to study these medically-related terms so as to best prepare yourself for your work in the *RF Healing Center*.

As The Story of a Living Temple did *not* address the important Glands of the **Endocrine System** related to spiritual development an outline for their study has been provided for the:

- Pituitary Gland
- Pineal Gland
- Adrenal Glands
- Thyroid Glands

Abridged text for The *Mystery of the Ductless Glands* by A. Student is included for each gland.

Also, not address is the **Lymphatic System**, so an outline has been provided for this system as well as including the:

- Spleen
- Thymus Gland

Abridged text for The *Mystery of the Ductless Glands* by A. Student is included for the Spleen and Thymus Gland.

Journaling Your Studies

It will be important to keep a journal on your studies so that you may reflect upon that which you feel competent in, need additional clarification, specific questions, and thoughts on connection to your spiritual work. Be sure to include pictures, tables, graphs, etc. that have empowered your studies, will be helpful in your visualizations/mediations, or your experiences with in/out of the Healing Center.

Chapter 1. Your Body a Temple

Do you not know and understand that you [the church] are the temple of God, and that the Spirit of God dwells [permanently] in you [collectively and individually]? If anyone destroys the temple of God [corrupting it with false doctrine], God will destroy the destroyer; for the temple of God is holy (sacred), and that is what you are. (**1 Corinthians 3:16-17 AMP**)

1. How is every human described?

2. Why is the body a temple and not a house?

3. How is ***Solomon's Temple*** described?

4. Why is ***Solomon's Temple*** considered a wonder?

5. What are the two roles of God in the human temple?

6. What is our role in building the human temple, why?

7. What did Paul tells us about our bodies?

8. What happens when we enter a temple?

9. Why is God in the church?

10. What does it mean to defile the temple of our bodies?

11. What happened when Solomon defiled the temple?

12. What happens we treat our bodies as temples?

Solomon's Temple

And it came to pass in the four hundred and eightieth year after the children of Israel were come out of the land of Egypt, in the fourth year of Solomon's reign over Israel, in the month Zif, which is the second month, that he began to build the house of the LORD. And the house which king Solomon built for the LORD, the length thereof was threescore cubits, and the breadth thereof twenty cubits, and the height thereof thirty cubits. And the porch before the temple of the house, twenty cubits was the length thereof, according to the breadth of the house; and ten cubits was the breadth thereof before the house. And for the house he made windows of narrow lights. And against the wall of the house he built chambers round about, against the walls of the house round about, both of the temple and of the oracle: and he made chambers round about (**1 Kings 6:1-5 KJV**)

Then Solomon began to build the house of the Lord at Jerusalem in mount Moriah, where the Lord appeared unto David his father, in the place that David had prepared in the threshing floor of Ornan the Jebusite. And he began to build in the second day of the second month, in the fourth year of his reign. Now these are the things wherein Solomon was instructed for the building of the house of God. The length by cubits after the first measure was threescore cubits, and the breadth twenty cubits. And the porch that was in the front of the house, the length of it was according to the breadth of the house, twenty cubits, and the height was an hundred and twenty: and he overlaid it within with pure gold. And the greater house he cieled with fir tree, which he overlaid with fine gold, and set thereon palm trees and chains. And he garnished the house with precious stones for beauty: and the gold was gold of Parvaim. He overlaid also the house, the beams, the posts, and the walls thereof, and the doors thereof, with gold; and graved cherubims on the walls. And he made the most holy house, the length whereof was according to the breadth of the house, twenty cubits, and the breadth thereof twenty cubits: and he overlaid it with fine gold, amounting to six hundred talents. And the weight of the nails was fifty shekels of gold. And he overlaid the upper chambers with gold. And in the most holy house he made two cherubims of image work, and overlaid them with gold. And the wings of the cherubims were twenty cubits long: one wing of the one cherub was five cubits, reaching to the wall of the house: and the other wing was likewise five cubits, reaching to the wing of the other cherub. And one wing of the other cherub was five cubits, reaching to the wall of the house: and the other wing was five cubits also, joining to the wing of the other cherub. The wings of these cherubims spread themselves forth twenty cubits: and they stood on their feet, and their faces were inward. And he made the vail of blue, and purple, and crimson, and fine linen, and wrought cherubims thereon. Also he made before the house two pillars of thirty and five cubits high, and the chapiter that was on the top of each of them was five cubits. And he made chains, as in the oracle, and put them on the heads of the pillars; and made an hundred pomegranates, and put them on the chains. And he reared up the pillars before the temple, one on the right hand, and the other on the left; and called the name of that on the right hand Jachin, and the name of that on the left Boaz.
(2 Chronicles 3 KJV)

Chapter 2. The Wonders of the Temple

I will give thanks and praise to You, for I am fearfully and wonderfully made; Wonderful are Your works, And my soul knows it very well. (**Psalm 139:14**)

1. What is the most sacred treasure of our temple?

2. What does David tell us will happen as we study the body in *Psalm 139:14*?

3. What is the "*engine*" of your body?

4. What other machines has the creator invented for your temple

5. How can we describe the "*living temple*"?

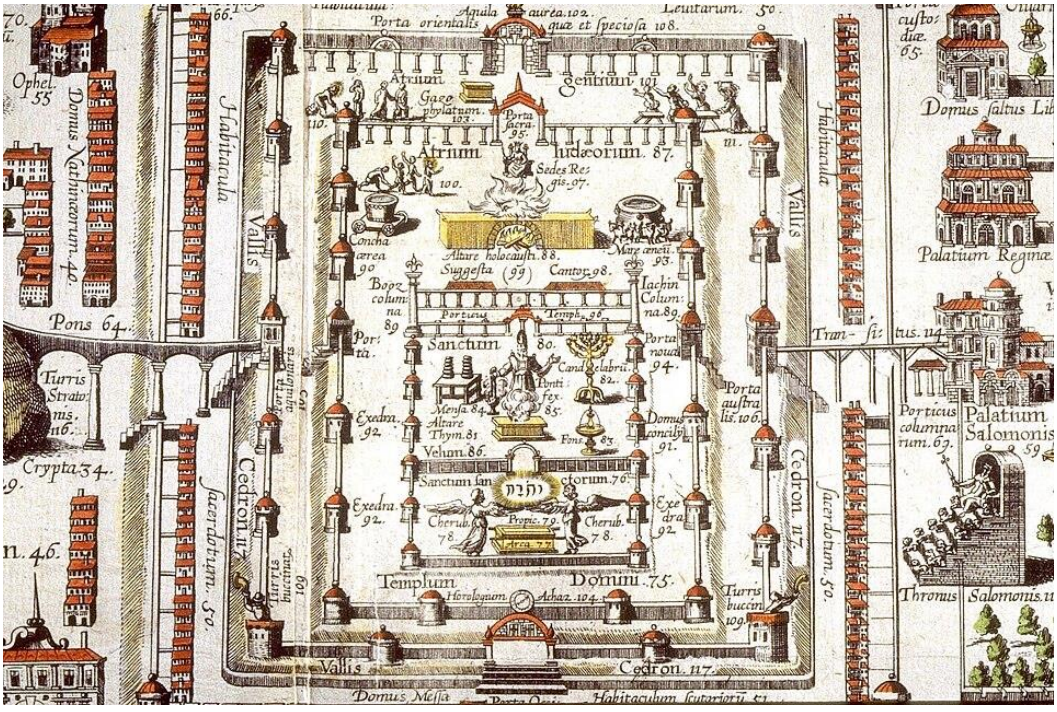
6. In studying your temple, what could you tell someone about the muscle in your arm?

7. What will you learn as you watch nature building your body temple?

8. How can you help in the building of your own body temple?

9. What will you learn the more you know and understand about your own temple?

10. What is the Divine Architects plan for you?



Solomon's Temple

Chapter 3. The Outside of the Temple

I have led you in the wilderness forty years; your clothes have not worn out on you, and your sandals have not worn out on your feet. (**Deuteronomy 29:5 AMP**)

1. What do the stone or marble walls of the temple represent?

2. How is our skin different than the clothes we wear?

3. How can we keep our skin healthy?

4. Why doesn't our skin wear out?

5. Where is our skin thicker on our bodies, why?

6. What does it mean that the skin is "*elastic*"?

7. What is the skin of the hand compared to, why?

8. What do we see if we examine the skin through a magnifying glass?

9. Why is taking regular bathes helpful to our bodies?

10. What is the thickness of the skin?

11. How is the outer skin described?

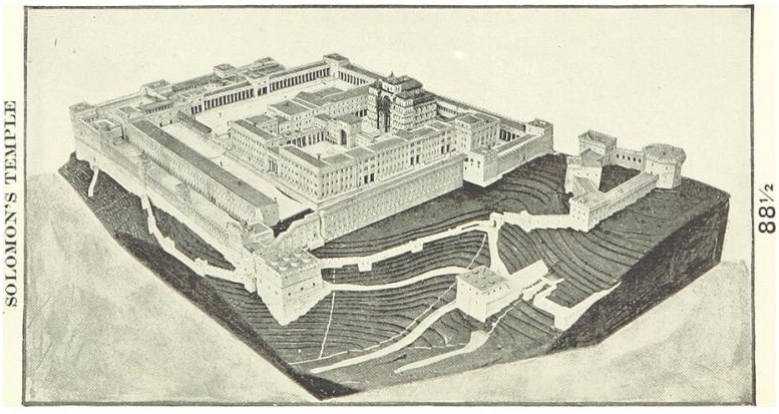
12. How is a blister formed?

13. What are the two layers of the skin called?

14. How does the true skin appear through the magnifying glass?

15. How does the palm of the hand appear when viewed with a magnifying glass?

16. What does each mound or papillae contain?



Chapter 4. How the Wall of the Temple can be a Living Wall

"Wash yourselves, make yourselves clean; Get your evil deeds out of My sight. Stop doing evil, (**Isaiah 1:16 AMP**)

1. What are tiny separate bodies in wood called?

2. Why can the human temple grow?

3. How is the size of cell represented?

4. How is a cell more than a "*sac*"?

5. What are the cells of the skin called?

6. How do new epithelial cells reach the surface of the skin?

7. What does the epidermis contain?

8. How can we describe the structure of the sweat duct and sweat gland?

9. What is the function of the sweat ducts?

10. How many pores are there in one-square inch in the skin on the palm of the hand?

11. How many pores are there on the entire skin?

12. What is the structure and function of the coil or sweat gland?

13. What is "*sweat*"?

14. How much sweat is released onto the skin each day?

15. What happens to the sweat on the skin?

16. Why must we keep our skin clean?

17. Why did the boy covered with gold leaf die the next day?

18. What happens when you have a fever and how did people resolve this?

19. How does your skin register changes in the temperature of the winter and summer?

And being in an agony he prayed more earnestly: and his sweat was as it were great drops of blood falling down to the ground. (***Luke 22:44 KJV***)

Chapter 5. Touch Cells and Living Wires

Understand this, my beloved brothers and sisters. Let everyone be quick to hear [be a careful, thoughtful listener], slow to speak [a speaker of carefully chosen words and], slow to anger [patient, reflective, forgiving]; for the [resentful, deep-seated] anger of man does not produce the righteousness of God [that standard of behavior which He requires from us]. (**James 1:19-20 AMP**)

1. What determines if you will have pain or tell if something is smooth or rough, hot or cold, square or round?

2. How do we describe a nerve?

3. Where is the "*office*" of your body?

4. What can "*touch cells*" detect?

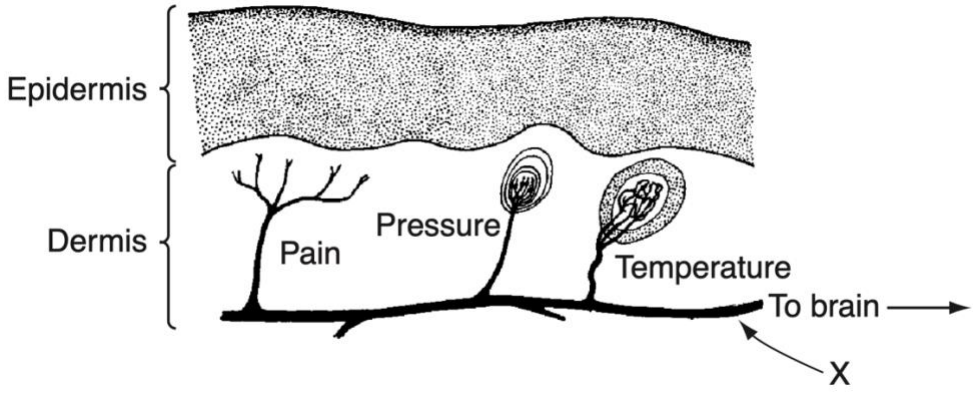
5. Where does God perfect system of communication function?

6. How does our perfect system of communication protect us?

7. Where are the touch cells most numerous in the body, why?

8. How was the blind boy able to catch the ball?

9. How do touch cells in the mouth protect us?



And whithersoever he entered, into villages, or cities, or country, they laid the sick in the streets, and besought him that they might touch if it were but the border of his garment: and as many as touched him were made whole.
(**Mark 6:56 KJV**)

Chapter 6. How to Keep the Wall Beautiful

Indeed the very hairs of your head are all numbered. Do not be afraid; you are far more valuable than many sparrows. **(Luke 12:7 AMP)**

1. What are the eight functions of the skin?

2. How can you have beautiful skin?

3. How do clothes affect the cleanliness of your skin?

4. Besides washing what else is needed to keep the skin healthy and clean?

5. What is the Architect's plan to keep the walls of your temple and all other parts strong, beautiful, and perfect?

6. What are the walls of the living temple covered with, why?

7. How many hairs are there in an average head of hair?

8. What are the parts of a hair?

9. What is a follicle?

10. How does the root of a hair get food?

11. How does a hair grow?

12. How does a hair appear under a microscope?

13. How is straight hair different from curly hair?

14. What determines the color of hair?

15. When does our hair turn white?

16. What is the function of the oil glands?

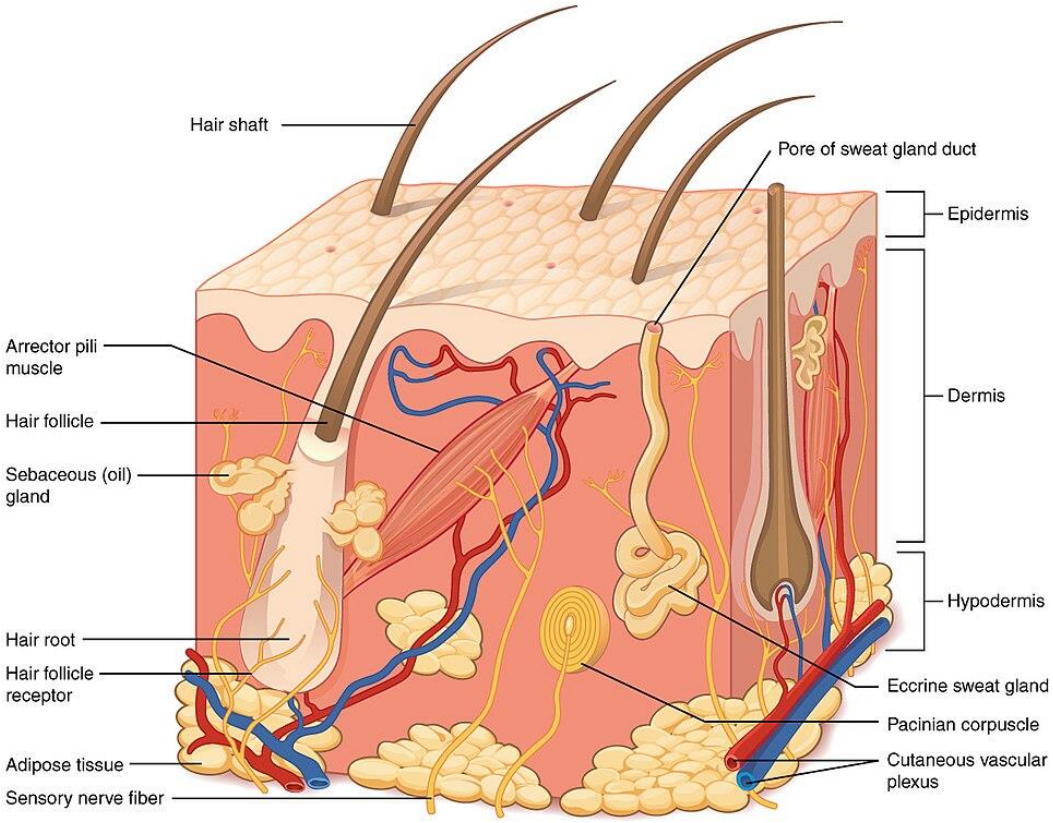
17. How can hair be kept healthy and beautiful?

18. What are the finger and toe nails, and their function?

19. How much do nails grow?

20. What happens to the nails when we are sick?

21. Why do we sometimes lose hair after a fever?



*Saturn also rules the teeth and the **skin**. By his action the teeth decay, leading to malnutrition, the synovial membranes are hardened, making the spine and limbs rigid; he makes the **skin** tough as the years go by. Saturn is at home in Capricorn, and by his reflex action in Cancer he interferes with the peristaltic action which is necessary in the digestion of food; he then causes anti-peristalsis, or vomiting. His general activities in the body are destructive and tend to end the life of the organism*. (***Message of the Stars***)

Libra** rules the kidneys, the suprarenals, the lumbar region of the spine, the vasomotor system and the **skin**, hence afflictions in Libra produce polyuria, or suppression of the urine, inflammation of the ureters which connect the kidneys with the bladder, Bright's disease, lumbago, eczema and other **skin diseases**.* (Message of the Stars***)

Capricorn** governs the **skin** and the knees, but it has also a reflex action on the stomach, which is governed by the opposite sign Cancer. Hence afflictions in Capricorn produce eczema and other **skin diseases**, erysipelas, leprosy, and digestive disturbances*. (Message of the Stars***)

*** Exploring The Integumentary System ***

1. What is the integumentary system?

2. What are the seven principal functions of the skin?

3. What are the five layers (strata) of the epidermis and their function?

4. What is the dermis consist of?

5. What are the two regions of the dermis and their function?

6. What us found in the subcutaneous region, function?

7. How is skin color produced?

8. What are epidermal ridges, function?

9. Describe the structure of a hair.

10. Describe the structure and function of sebaceous glands, sudoriferous glands, ceruminous glands.

11. Describe the structure and function of the nails.

12. How do skin wounds heal?

13. How does the skin help regulate body temperature?

Medically-Related Terms

- Acne
- Athlete's foot
- Burns (1st, 2nd, 3rd degree)
- Chickenpox
- Cold Sores
- Contusion
- Corn
- Cyst
- German Measles
- Hemangioma
- Hives
- Impetigo
- Laceration
- Measles
- Nevus
- Pressure Sores
- Pruritus
- Skin Cancer

- Wart
- Vitamin D Production and Deficiency
- Albinism
- Skin Color and Diagnosing Disease
- Skin Grafts
- Male-Pattern Baldness
- Graying of Hair
- Ingrown Nail

Sensations

1. What are the levels of sensation?

2. What is modality?

3. What are the components of sensation?

4. How are sensory receptors classified?

5. Describe cutaneous sensations and receptors.

6. Describe the tactile sensations of touch, pressure, vibration, itch and tickle and receptors.

7. Describe the thermal sensations and receptors.

8. Describe pain sensations, different types of pain and receptors.

9. Describe proprioceptive sensations and receptors.

Medically-Related Terms

- Analgesia
- Pain Management
- Somatic, Visceral, Referred, Phantom Pain
- Anesthesia
- Acute and Chronic Pain

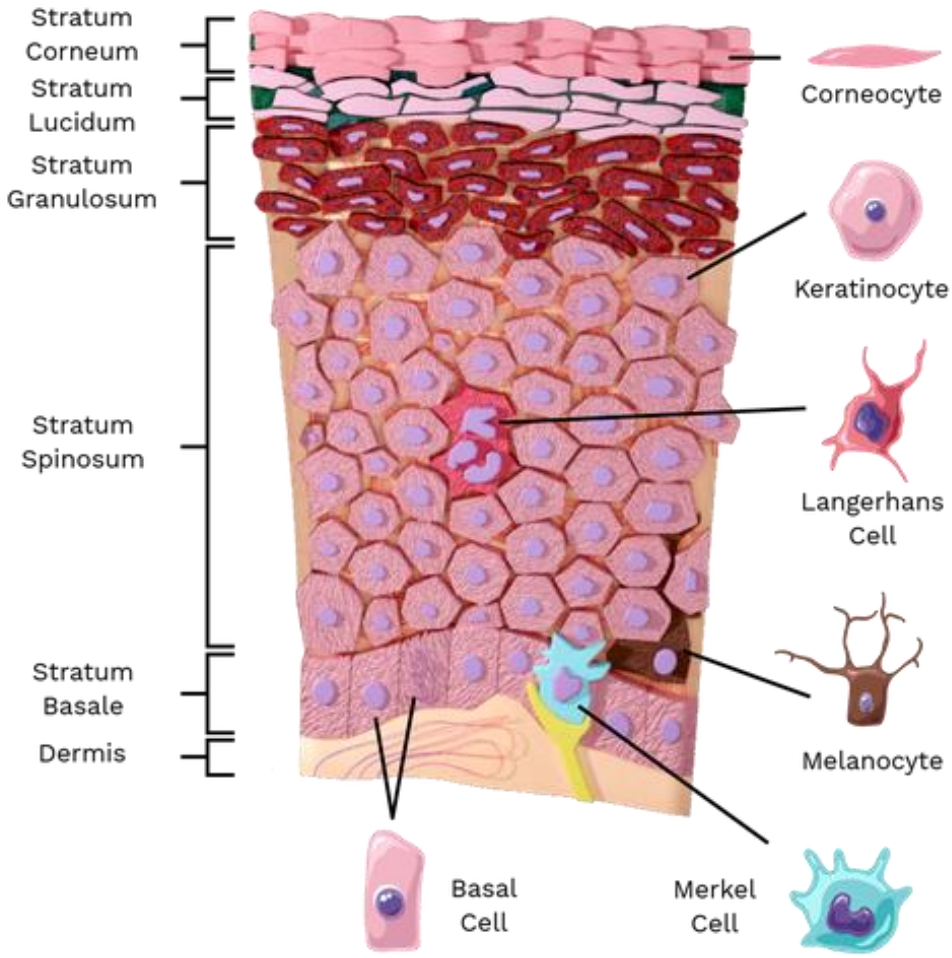
The glory of young men is their strength: And the beauty of old men is the grey head. (**Proverbs 20:29 KJV**)

The hoary head is a crown of glory, If it be found in the way of righteousness. (**Proverbs 16:31 KJV**)

And even to your old age I am he; and even to hoar hairs will I carry you: I have made, and I will bear; even I will carry, and will deliver you. (**Isaiah 46:4 KJV**)

In the sweat of thy face shalt thou eat bread, till thou return unto the ground; for out of it wast thou taken: for dust thou art, and unto dust shalt thou return.
(**Genesis 3:19 KJV**)

EPIDERMIS LAYERS



"*This etheric fluid radiates from the whole periphery of the body through every pore of the **skin**, carrying with it an enormous amount of the poisonous gases which are generated by the food we take into our systems, selected usually because it pleases either the eyes or the palate, rather than for the nutritional value which it contains*." (**Max Heindel, *Message of the Stars***)

Chapter 7. The Pathway of Taste

'*I know your deeds, that you are neither cold (invigorating, refreshing) nor hot (healing, therapeutic); I wish that you were cold or hot. So because you are lukewarm (spiritually useless), and neither hot nor cold, I will vomit you out of My mouth [rejecting you with disgust]. Because you say, "I am rich, and have prospered and grown wealthy, and have need of nothing," and you do not know that you are wretched and miserable and poor and blind and naked [without hope and in great need],* (**Revelation 3:15-17 AMP**)

1. What are the raw material to build the living temple?

2. Where does the pathway of taste begin?

3. How do we know we are intended to eat/not eat something?

4. What is the divine Architect's plan to keep bad things out of the body?

5. What senses are all the natural food protected by?

6. How do the mounds on the tongue appear under a microscope?

7. What can the taste buds tell us?

8. How are the taste buds arranged on the tongue?

9. How else can a flavor be recognized?

10. Where does taste actually occur, and how?

11. How have we abused our taste buds?

12. How are the taste buds dulled?

13. Why is it foolish to quickly eat large amounts of food that please the taste buds in the mouth for an instant?

14. How do you experience the full pleasure of food?

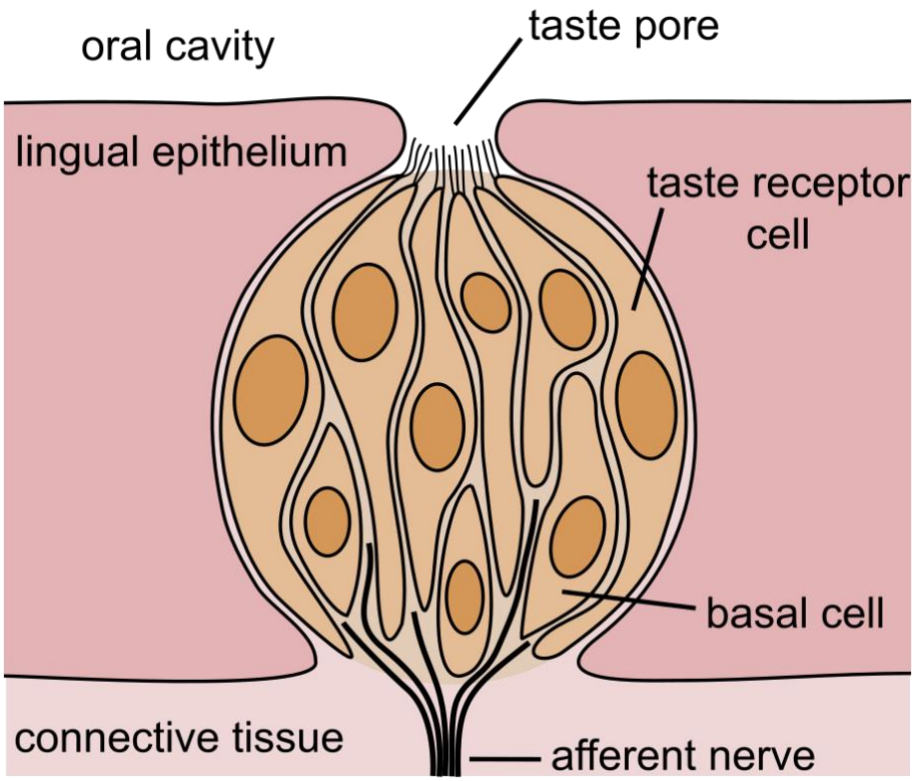
15. Why does food need sufficient time in the mouth?

16. When is food ready to be swallowed?

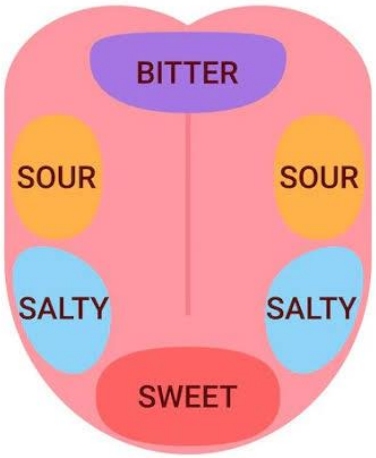
17. What do we find about all the fruits?

18. Why should we preserve simple and delicate flavors?

Anatomy of a Taste Bud



The Taste Areas of the Tongue



Oh, taste and see that the LORD is good; Blessed is the man who trusts in Him!
(**Psalm 34:8 KJV**)

Chapter 8. The Pathway of Smell

For we are the sweet fragrance of Christ [which ascends] to God, [discernible both] among those who are being saved and among those who are perishing; 16 to the latter one an aroma from death to death [a fatal, offensive odor], but to the other an aroma from life to life [a vital fragrance, living and fresh].
(**2 Corinthians 2:15-16 AMP**)

1. Why is the nose described as a "*house*"?

2. What is the function of the nostrils?

3. Where do the "*odors*" go within the nose?

4. What is found on the walls of the upper rooms of the nose?

5. What occurs when the "*smell bodies*" are touched?

6. What is the effect of pleasant/bad odors?

7. How is the power of smell limited?

8. How does the sense of smell protect us?

9. How does the beginning of the opening of the nose protect us?

10. Why does our nose sometimes looked "*pinched*"?

11. When is air ready to go to the lungs?

12. What sense does smell help, is it reciprocal?

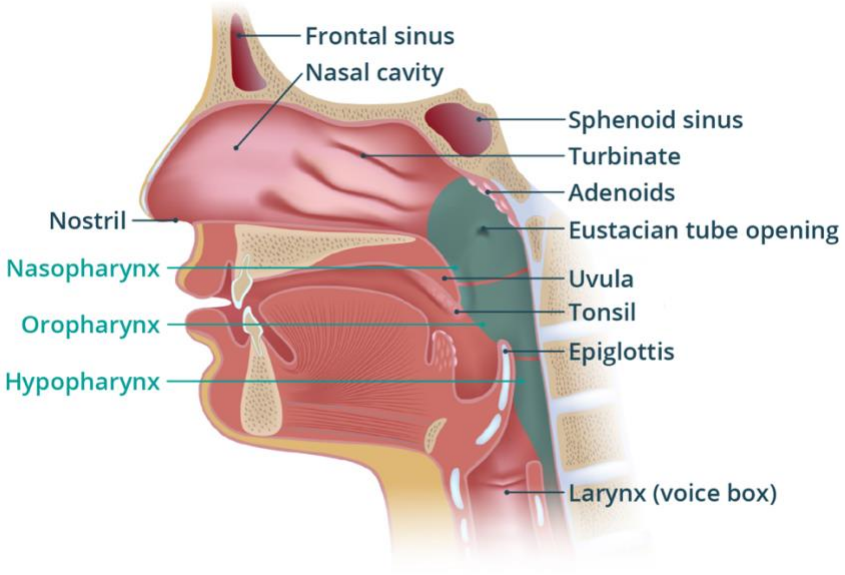
13. What happens to your senses when you have acold?

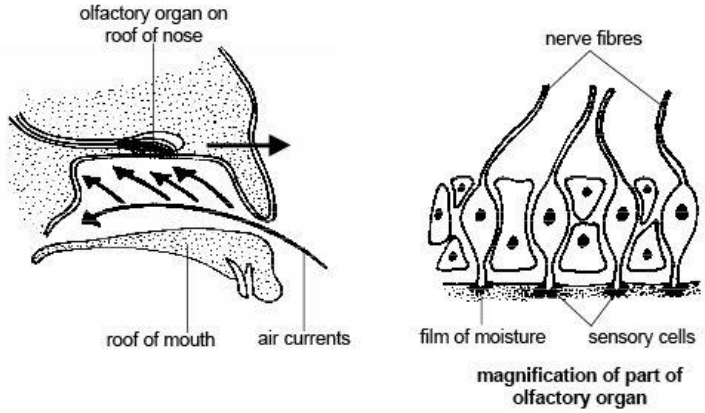
14. What fragrance has the divine Architect given us?

15. If we build our temple and our lives as God has planned what fragrance will we have?

And walk in love, as Christ also hath loved us, and hath given himself for us an offering and a sacrifice to God for a sweet-smelling savour.
(**Ephesians 5:2 KJV**)

And the LORD smelled a sweet savour; and the LORD said in his heart, I will not again curse the ground any more for man's sake; for the imagination of man's heart is evil from his youth; neither will I again smite any more every thing living, as I have done. (**Genesis 8:21 KJV**)





"*It is well known that all things, our food included, radiate from themselves continuously small particles which given an index of the thing whence they emanate, its quality included. Thus, when we lift the food to our mouth a number of these invisible particles enter the* ***nose*** *and by excitation of the* ***olfactory tract*** *convey to us a knowledge whether the food, we are about to take is suitable for this purpose or not, the* ***sense of smell*** *warning us to discard such foods as have a noxious odor, etc. But besides those particles which attract or repel us from food by their action on the* ***olfactory tract*** *through the* ***sense of smell****, there are others which penetrate the sphenoid bone, impinge upon the* ***pituitary body*** *and start the Uranian alchemistry by which a secretion is formed and injected into the blood. This furthers assimilation through the chemical ether, thus affecting the normal growth and well-being of the human body through life*."
(**Max Heindel, Occult Principles of Health and Healing**)

Chapter 9. The Windows of the Temple

"The eye is the lamp of the body; so if your eye is clear [spiritually perceptive], your whole body will be full of light [benefiting from God's precepts]. But if your eye is bad [spiritually blind], your whole body will be full of darkness [devoid of God's precepts]. So if the [very] light inside you [your inner self, your heart, your conscience] is darkness, how great and terrible is that darkness!
(**Matthew 6:22-23 AMP**)

1. What are the windows of the living human temple?

2. How are the eyebrows like the cornice to a window, function?

3. How are the eyelids like curtains, function?

4. What is the function of the eye lashes?

5. How can you prove that your eyes can move in all directions?

6. What moves the eye?

7. Why do eyes sometimes appear sunken?

8. What is the cornea?

9. What is the pupil, function?

10. How does the pupil respond to light/dark?

11. How is the pupil controlled?

12. Why do mother's keep their babies out of bright lights?

13. What is the iris, function?

14. Wat would you see if you looked through the pupil?

15. Where do you see?

16. How is the eye kept clean, from where and how?

17. What happens if dirt gets in your eye?

18. How can you help is something gets in your eye?

19. What are the three coats of the eyeball, function?

20. What is the retina, look like?

20. What is the shape of the retina?

21. What is the structure of the nerve trunk?

"*The reason is, that as ether is physical matter, etheric sight depends upon the sensitiveness of the* ***optic nerve****, while spiritual sight is acquired by developing latent vibratory powers in two little organs situated in the brain: the* ***pituitary body*** *and the* ***pineal gland****. Even near-sighted people may have etheric vision. Though unable to read the print in a book, they may be able to "see through a wall," owing to the fact that their* ***optic nerve*** *responds more rapidly to fine than to coarse vibrations*." (**Max Heindel,** ***Rosicrucian Mysteries***)

Chapter 10. A Living Camera

Let your eyes look directly ahead [toward the path of moral courage]
And let your gaze be fixed straight in front of you [toward the path of integrity].
(Proverbs 4:25 AMP)

1. Why is the eye even better than a camera?

2. What is all that the Giver asks for your camera?

3. How does light falling on the sight nerve take a picture?

4. What is the picture gallery and memory wall?

5. How can we prevent pictures from not being so "*dark*"?

6. What are the most lasting images, how do we take advantage of this?

7. Why is living in the city a challenge?

8. What is the difference between an eye and a window?

9. What occurs when you look at things that are not good vs. beautiful and pure?

10. How do we maintain bright eyes and healthy sight over time?

11. How should the light be when you are reading?

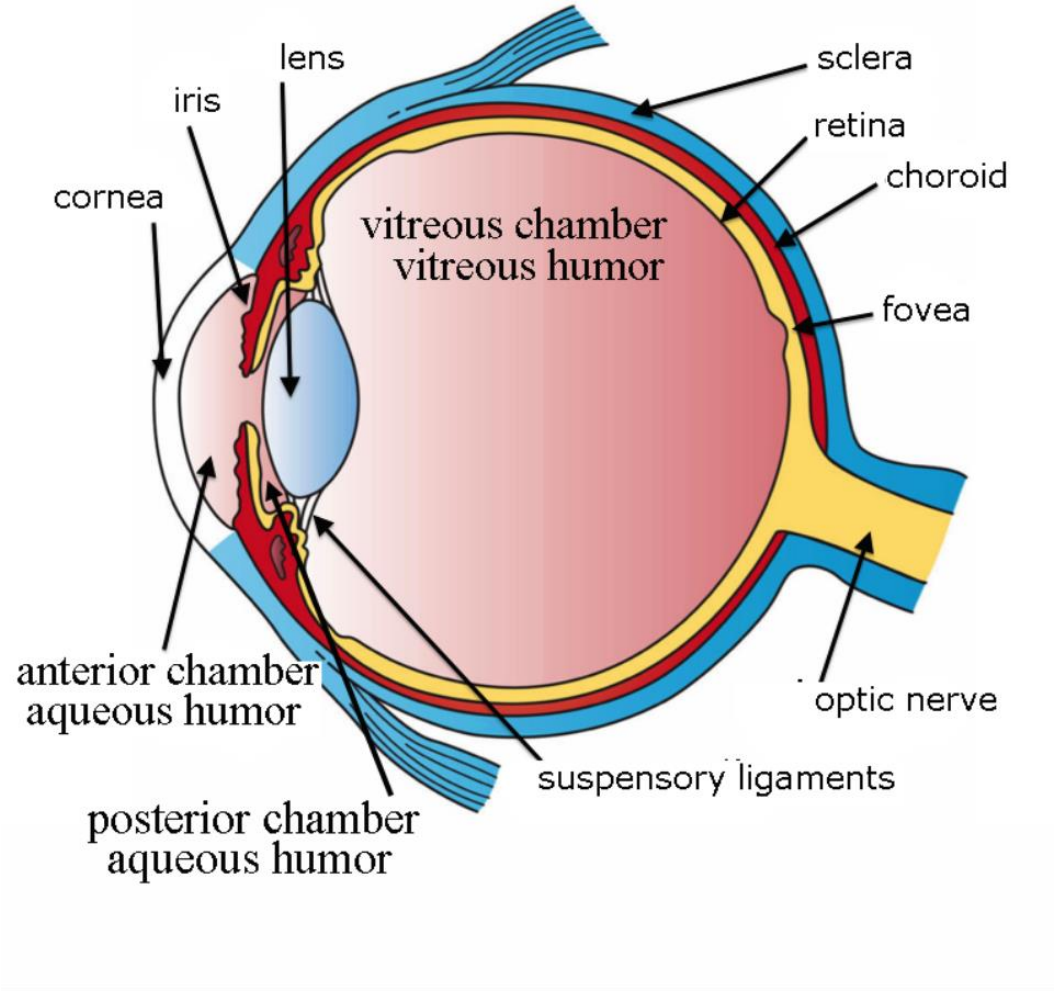
12. What do you need to do when doing "*close work*"?

13. What reading practices are difficult on the eyes?

14. What is a good way to rest the eyes?

And Elisha prayed, and said, LORD, I pray thee, open his eyes, that he may see. And the LORD opened the eyes of the young man; and he saw: and, behold, the mountain was full of horses and chariots of fire round about Elisha. And when they came down to him, Elisha prayed unto the LORD, and said, Smite this people, I pray thee, with blindness. And he smote them with blindness according to the word of Elisha. And Elisha said unto them, This is not the way, neither is this the city: follow me, and I will bring you to the man whom ye seek. But he led them to Samaria. And it came to pass, when they were come into Samaria, that Elisha said, LORD, open the eyes of these men, that they may see. And the LORD opened their eyes, and they saw; and, behold, they were in the midst of Samaria.
(**2 Kings 6:17-20 KJV**)

ANATOMY OF THE EYE



O Lord Jesus Christ, open the eyes of my heart, that I may hear Your word, and understand and do Your will, for I am a sojourner upon the earth. Hide not Your commandments from me, but open my eyes, that I may perceive the wonders of Your law. Speak unto me the hidden and secret things of Your wisdom.

On You do I set my hope, O my God, that You shall enlighten my mind and understanding with the light of Your knowledge, not only to cherish those things which are written, but to do them; that in reading the lives and sayings of the saints I may not sin, but that such may serve for my restoration, enlightenment and sanctification, for the salvation of my soul, and the inheritance of life everlasting. For You are the enlightenment of those who lie in darkness, and from You comes every good deed and every gift.

Amen.

- St. John Chrysostom

Chapter 11. The Pathway of Sound

And even things without life giving sound, whether pipe or harp, except they give a distinction in the sounds, how shall it be known what is piped or harped?
*(***1 Corinthians 14:7 KJV**)

1. How does every wave of sound start?

2. What is the function of the external ear?

3. What is the outside part of the ear called?

4. How long is the tube of the external ear?

5. Why does the hearing canal produce wax?

6. What is at the end of the hearing canal?

7. How does the ear drum produce different sounds?

8. What three bones are in the middle ear?

9. What is the Eustachian tube, function?

10. How can you open the Eustachian tube?

11. How is an ear ache caused, possible outcome?

12. What is the function of the internal ear?

13. What is the cochlea, structure?

14. Why is cochlea fluid filled?

15. What is the organ of Corti, structure?

16. What does the hearing nerve connect to at both ends?

17. What is the lowest/highest sound we can hear?

18. Describe the pathway of a sound (ringing church bell).

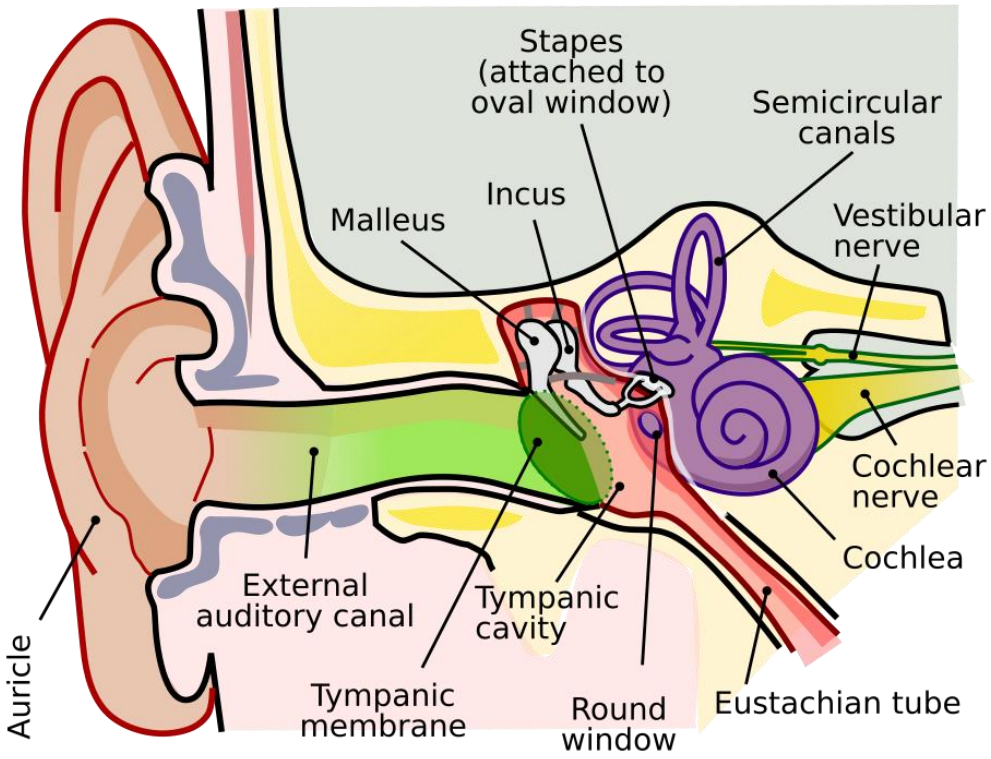
19. Why don’t sounds we hear run together?

20. What sounds make harmony/disharmony in your living temple?

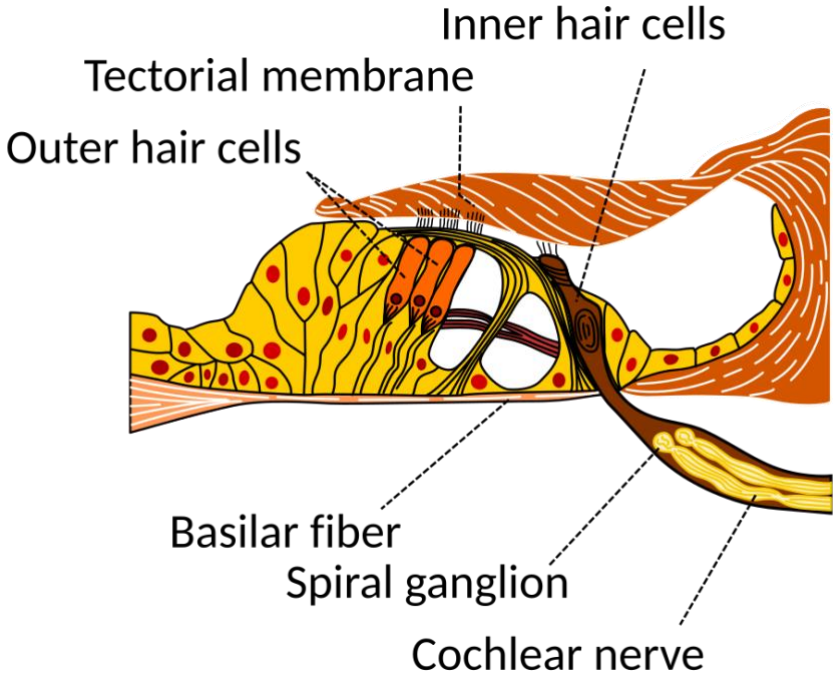
21. Why shouldn’t objects be put into the ear?

22. What things can you do to protect your ears?

The External, Middle, and Inner Ear



The Organ of Corti (Inner Ear)



Chapter 12. The Entrances of the Temple

And for the entering of the oracle he made doors of olive tree: the lintel and side posts were a fifth part of the wall. The two doors also were of olive tree; and he carved upon them carvings of cherubims and palm trees and open flowers, and overlaid them with gold, and spread gold upon the cherubims, and upon the palm trees. So also made he for the door of the temple posts of olive tree, a fourth part of the wall. And the two doors were of fir tree: the two leaves of the one door were folding, and the two leaves of the other door were folding. And he carved thereon cherubims and palm trees and open flowers: and covered them with gold fitted upon the carved work. (**1 Kings 6:31-35 KJV**)

1. How are senses described in terms of your temple?

2. What was our temple planned with in view?

3. What makes all the difference in the world for your temple?

4. How does man differ from animals, why?

5. What information comes from the pathway of touch?

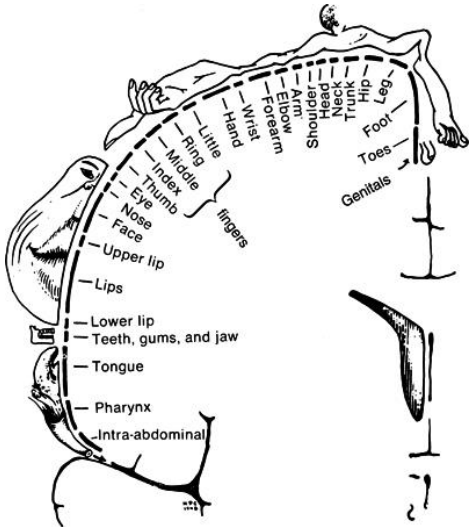
6. What information comes from the pathway of taste?

7. What information comes from the pathway of smell?

8. What information comes from the pathway of hearing?

9. What information comes from the pathway of sight?

10. How do you keep the different pathways in good repair?



Sensory Map of the Brain

*** Exploring Your Special Senses ***

Olfactory (Smell)

1. Describe the structure and function of the olfactory receptors.

2. What are the seven primary scents?

3. Describe adaptation to odor

4. What is the olfactory pathway to the brain?

Gustatory (Taste)

1. Describe the structure and function of the gustatory receptors

2. How are the gustatory receptors stimulated?

3. Describe adaptation to taste.

4. How does the nerve impulse travel from a taste bud to the brain?

Visual (Sight)

1. What are the accessory structures of the eye, their functions?

2. Describe the structure and function of the three layers of eyeball.

3. Describe how photoreceptors produce color vision.

4. Describe the two cavities in the interior of the eyeball.

5. How the lens is used to produce an image.

6. How are the following events related to vision
    a. Refraction of Light
    b. Accommodation of the lens
    c. Constriction of the pupil

7. Describe the visual pathway to the brain

8. What is convergence, occur?

9. Describe the structure of the rods and cones.

10. How do photopigments respond to darkness and light?

11. How do receptor potentials adapt?

12. What is the visual field and how does it relate to image formation.

Medically-Related Terms

- Corneal Transplant
- Detached Retina
- Cataracts
- Myopia and Hypermetropia
- Astigmatism
- Colorblindness
- Night Blindness

Auditory (Hearing) and Balance

1. Describe the structure and function of the external or outer ear.

2. Describe the structure and function of the middle ear.

3. Describe the structure and function of the inner ear.

4. What are sound waves and how are they measured?

5. How is sound transmitted from the auricle to the organ of Corti?

6. What is the pathway for sound impulses to the brain?

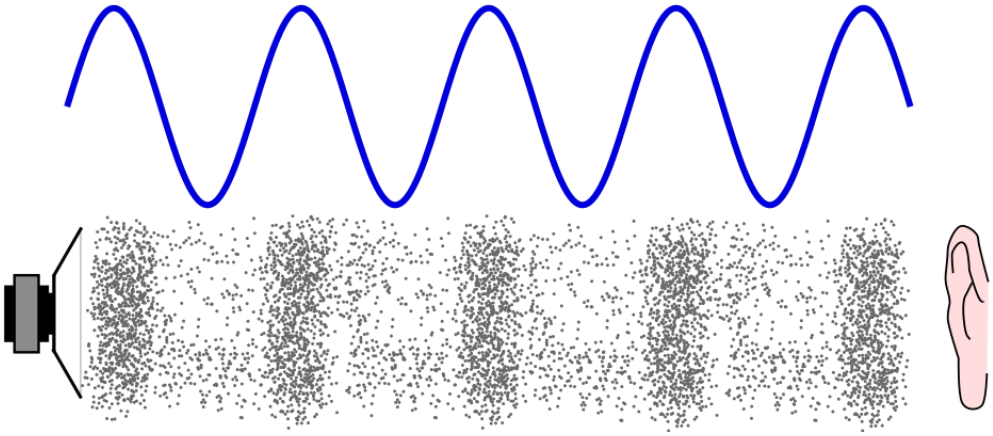
7. How are static and dynamic equilibrium maintained?

8. How is the ear involved in maintain balance?

Medically-Related Terms

- Perforated Eardrum
- Cochlear Implant
- Glaucoma
- Meniere's Disease
- Otitis Media
- Motion Sickness
- Conjunctivitis
- Eustachitis
- Keratitis
- Labyrinthitis
- Myringitis
- Otalgia
- Ptosis

- Retinoblastoma
- Scotoma
- Strabismus
- Tinnitus
- Trachoma
- Vertigo



Sound Waves

Hearing Ambient Noise from your Surrounding Environment

Chapter 13. Your Sanctum Sanctorum

And after the second veil, the tabernacle which is called the Holiest of all; Which had the golden censer, and the ark of the covenant overlaid round about with gold, wherein was the golden pot that had manna, and Aaron's rod that budded, and the tables of the covenant; And over it the cherubims of glory shadowing the mercyseat; of which we cannot now speak particularly. (**Romans 9:3-5 KJV**)

1. Why does the temple of your body have a telegraph system?

2. What are the main wires called, how many are there?

3. How many pairs of nerves connect to the spinal cord, where do they go?

4. How many main wires carry messages back and forth between the brain and every part of the living temple?

5. What happens when you work with/against the Architect in the brain?

6. What organ places us above all animals?

7. How do you know the mind is at work?

8. What are different parts of the brain responsible for?

9. What is the Architect's secret?

10. How is the brain protected?

11. How is the brain like a walnut?

12. What are the four parts of the brain, largest and smaller part?

13. What is the meaning of medulla oblongata and pons Varolii, shape?

14. What is the sanctum sanctorum, function?

15. What important part of you is in your sanctum sanctorum?

16. The power of our sanctum sanctorum requires us to be?

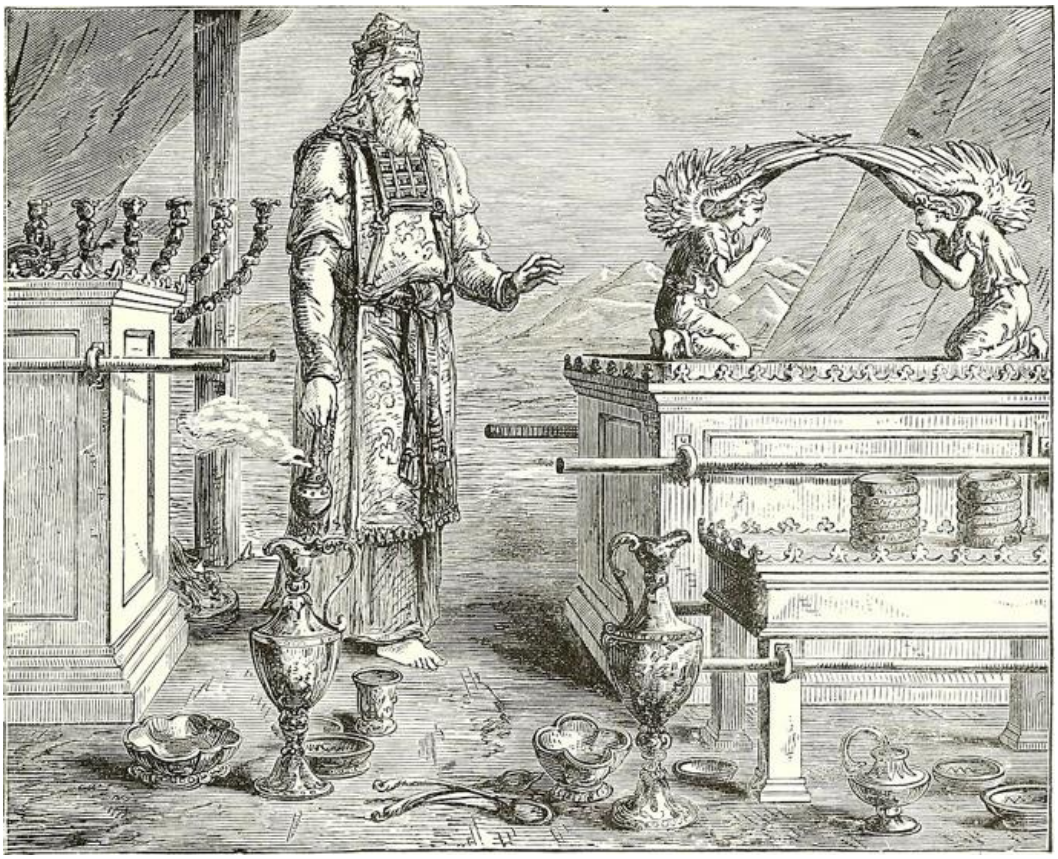
***Explore the Integrative Functions of the Cerebrum**

1. Memory, sleep, wakefulness, and emotional response

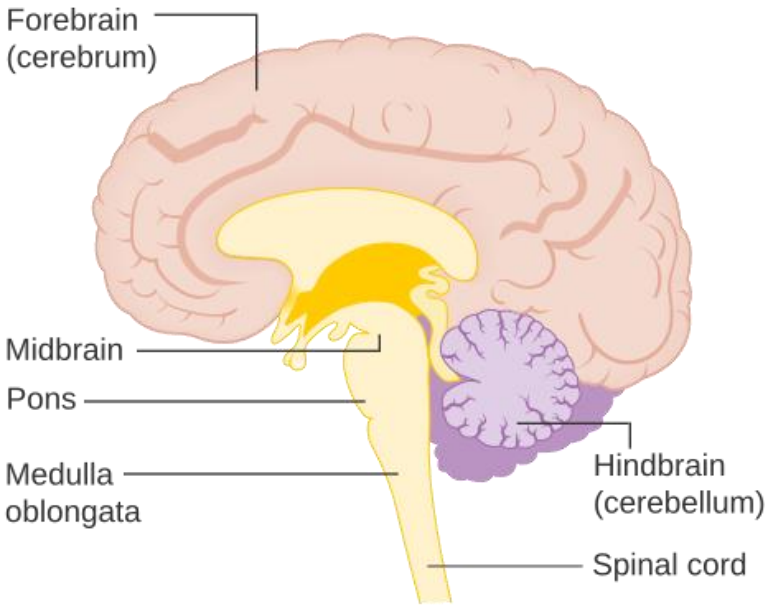
2. Altered Consciousness

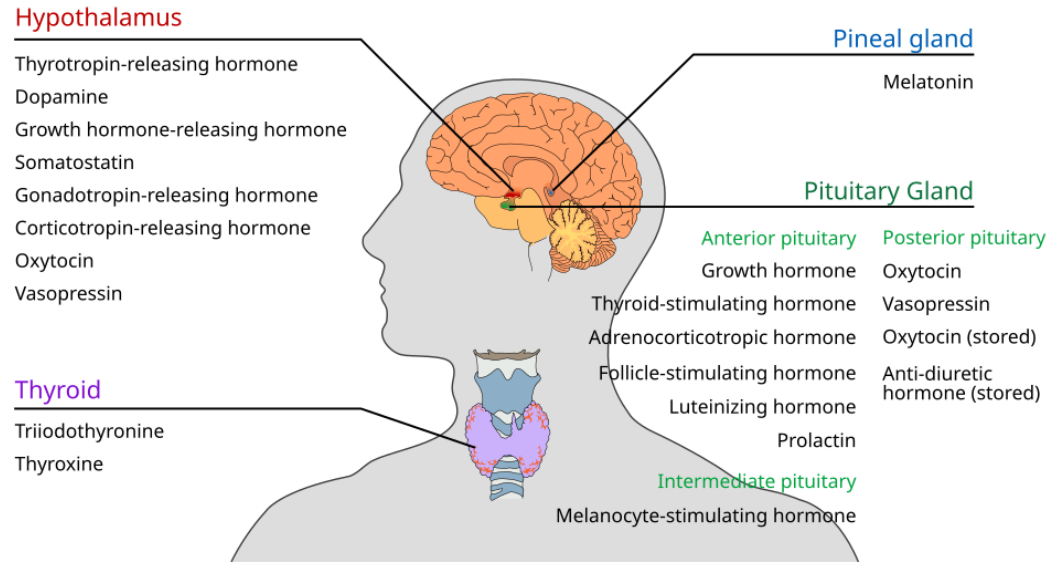
3. Stage 1 of NREM Sleep

4. REM Sleep and Dreaming

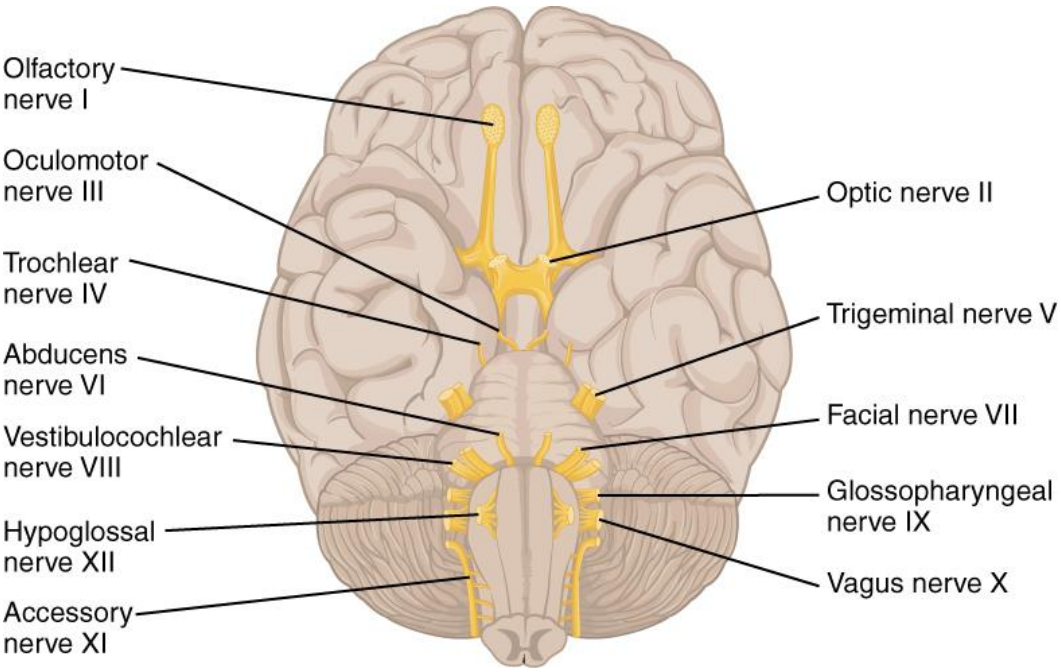


The Sanctum Sanctorum – The Holy of Holies in the Tabernacle





The Cranial Nerves



Chapter 14. The Brain Workers

And be renewed in the spirit of your mind; (**Ephesians 4:23 KJV**)

1. What is all the work of the brain body done by?

2. How many cells are in the brain and spinal cord?

3. What size are the smallest and largest brain cells?

4. What injures brain cells?

5. How can we have the same number of brain cells at birth and as an adult?

6. What do the different brain cells look like?

7. What does the water of the brain provide?

8. What is a dendrite, function?

9. What is the axis-cylinder, function?

10. Why are each nerve fiber covered with a layer of fat?

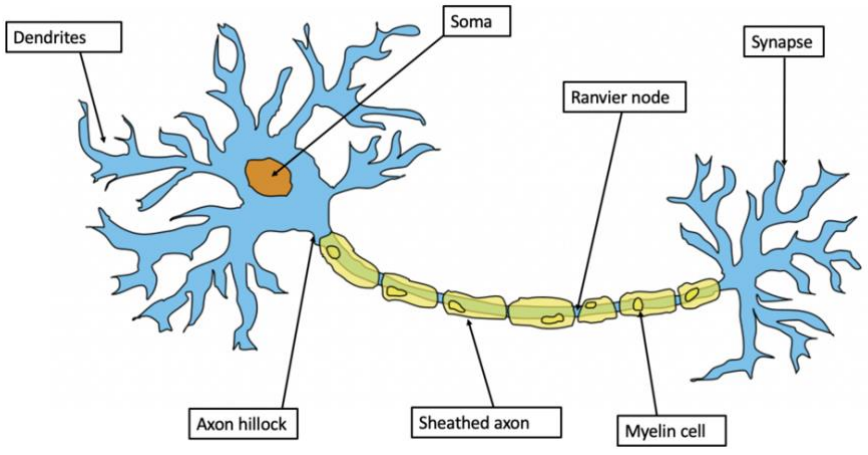
11. Where do most of the brain cells live and work, thickness?

12. Where is the gray and white matter found?

13. What is the surface area of the gray matter?

14. What happens the more you use your brain?

15. What happens with all the new things we think, say, or do?



Chapter 15. What the Brain Workers Do

And when I beheld, lo, the sinews and the flesh came up upon them, and the skin covered them above: but there was no breath in them. (**Ezekiel 37:8 KJV**)

1. What happens if a cell in the body is injured or dies?

2. What is the range in size of nerve cells?

3. What is a motor center?

4. How do brain cells work to help you play piano?

5. Why don't you have to keep repeating the same order to the same cell?

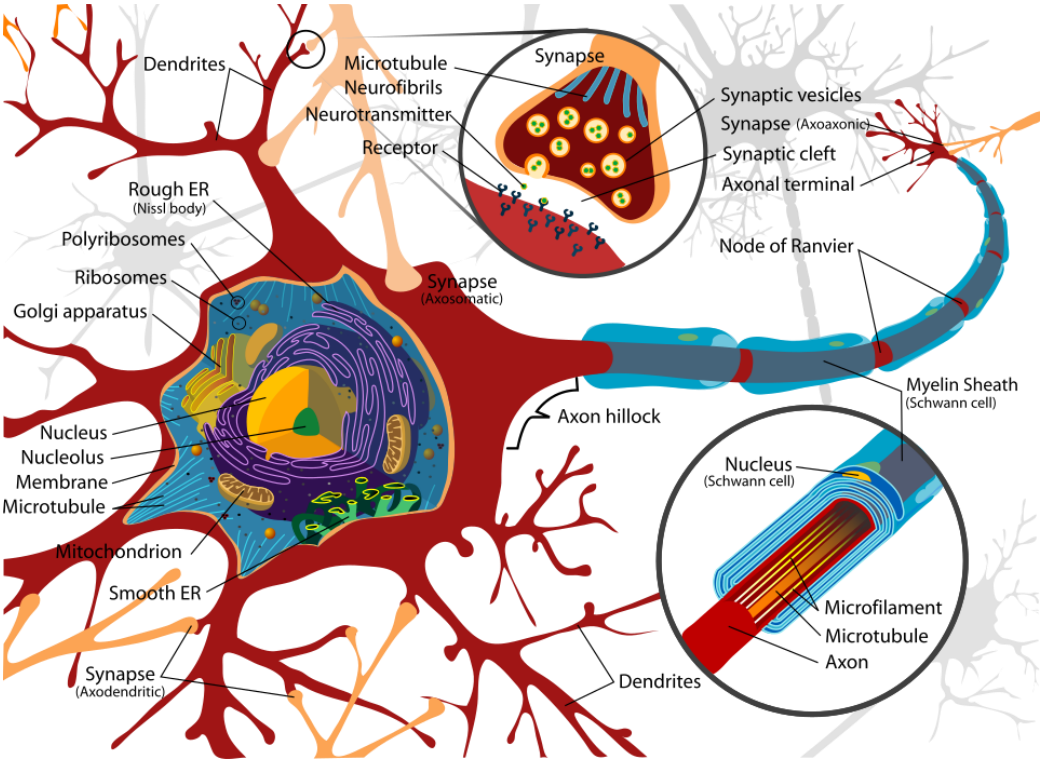
6. Why can't babies walk or talk immediately?

7. How are nerve cells "*perfect little batteries*"?

8. How fast does the electricity flow in a nerve cell?

9. What is the work of muscles?

10. What happens if a nerve fiber is cut?



Chapter 16. How Brain Workers are Trained

Watch and pray, that ye enter not into temptation: the spirit indeed is willing, but the flesh is weak. (**Matthew 26:41 KJV**)

1. How do nerve cells learn?

2. What can/can't nerve cells do?

3. What happens when train a nerve cell right in the first place?

4. Why do messages to the brain often go in one way?

5. When do you stop doing tasks automatically?

6. Why is it difficult for alcoholics to reform?

7. When is your character largely determined by?

8. When is it easiest to make pathways?

9. How can we resist temptations?

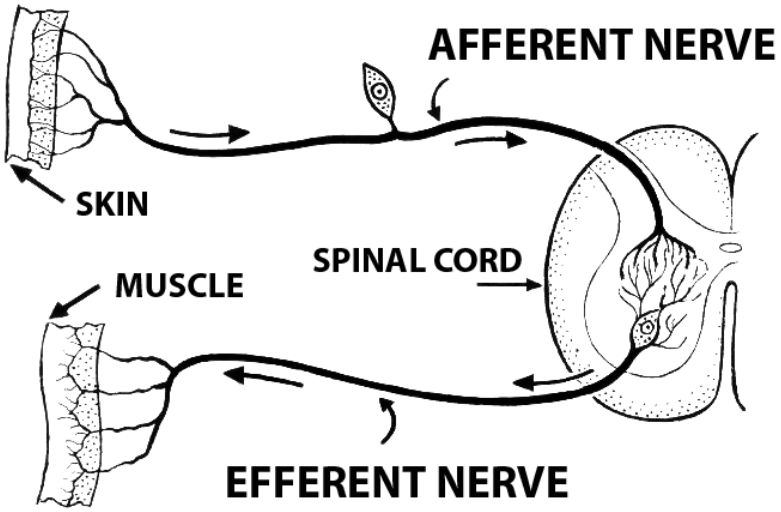
10. How can we remember things better?

11. What should we train our nerve cells to do when we are young?

12. What happens when nerve cells are not used?

13. What happens when a nerve cell tires, and is given stimulates?

14. What do nerve cells show and reveal?



Chapter 17. The Sympathetic Workers

A merry heart doeth good like a medicine: but a broken spirit drieth the bones.
(**Proverbs 17:22 KJV**)

1. What do sympathetic nerves do?

2. What are ganglia, how many sympathetic ganglia are there?

3. Where are the ganglion in the body?

4. Why do we have ganglia?

5. What are some of the jobs of the sympathetic workers?

6. What do the sympathetic nerves in the blood vessels do?

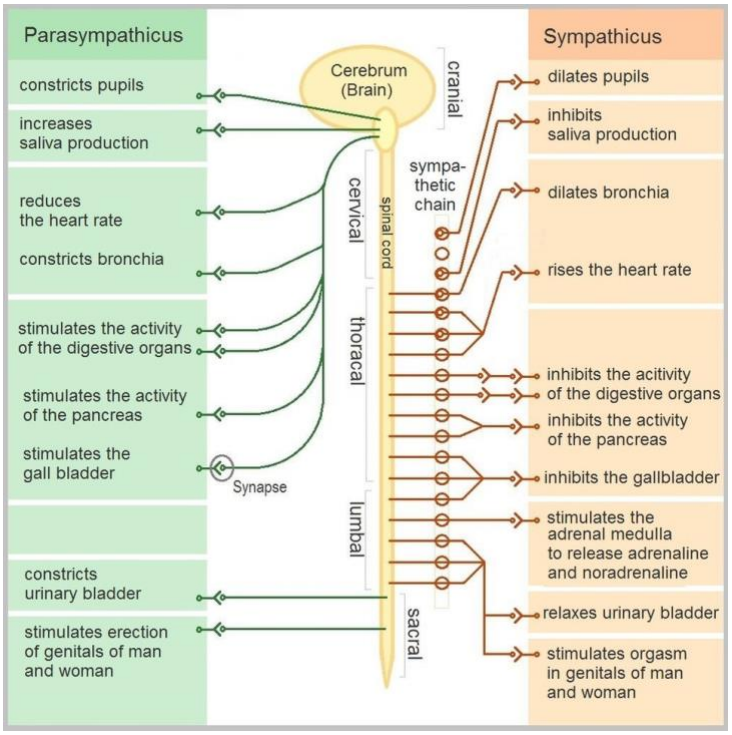
7. Where is the solar plexus, what is it, and what does it do?

8. What happens if you are knocked unconscious?

9. What happens after you swallow food?

10. What happens when you feel happy/sick or worried?

11. How can you help to prevent illness?



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Exploring the Autonomic Nervous System

1. Function and effects of the autonomic nervous system (ANS)

2. Two main components of the ANS: general visceral sensory (afferent) neurons and general visceral motor (efferent) neurons

3. Regulation by the mainly the hypothalamus and medulla oblongata with input from the limbic system and regions of the cerebrum. (Higher Centers)

4. Regulation of visceral activities (exciting and inhibiting effector tissue)

5. Two divisions of the ANS: sympathetic and parasympathetic

6. Autonomic Motor Pathways

7. Sympathetic Division: structure, ganglia type/location/fibers, location

8. Parasympathetic Division: structure, ganglia type/location/fibers, location

9. ANS Neurotransmitters and Receptors

10. Parasympathetic and Sympathetic Responses: Glands, Smooth Muscle, Cardiac Muscle

11. Antagonistic effects of Parasympathetic and Sympathetic divisions of the ANS

12. What is a visceral autonomic reflex, describe, examples?

*"Another class of organs are simply in a state or dormancy, and among these are the **pituitary body** and the **pineal gland**. If they were not to be used in the future, they would surely atrophy, as do all other organs when they have ceased to be useful. In the far past these organs were connected with the **sympathetic system** and invested man with involuntary clairvoyance, and because of their connection with the **cerebrospinal system** they will in the future enable mankind to effect a contact with the Spiritual Worlds at will.*

*It is easier to roll a stone downhill than to roll it up hill; retrogression is more readily accomplished than progression, and when people seek for development in a negative condition, they readily renew the negative activity of the **pituitary body** and the **pineal gland**, and become negative clairvoyants. But as any faculty which is exercised by means of the **involuntary nervous system** cannot be exercised by the power of the will, this faculty is, of course, sporadic in mediums. At times, when the power is on, they can contact the Spiritual Worlds in a limited way. At other times, when the power is off, they are unable to see. Therefore, they often simulate in order to earn a needed fee*."
(**Max Heindel, *Rosicrucian Philosophy in Questions and Answers, Vol. 1***)

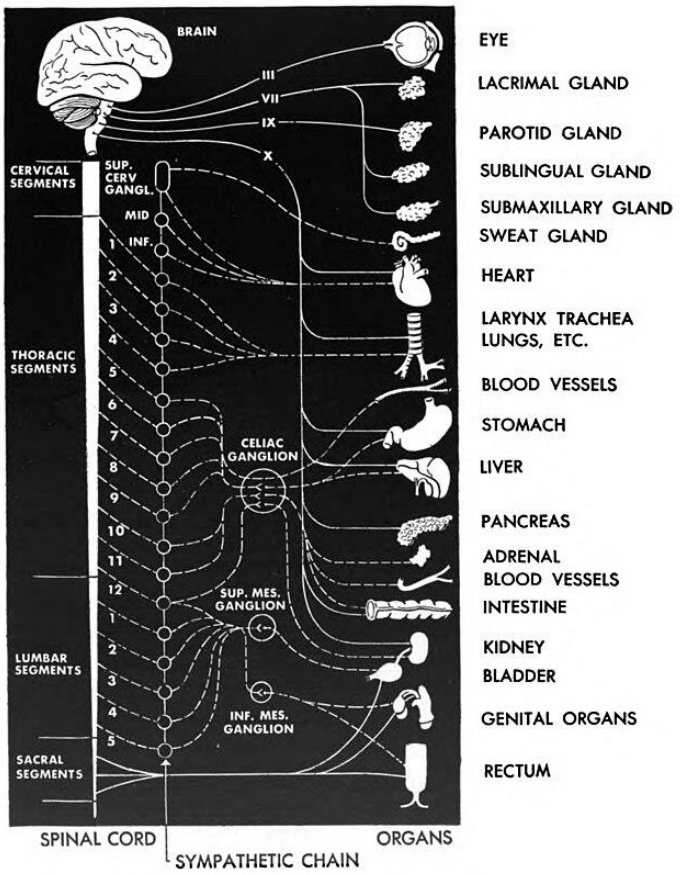
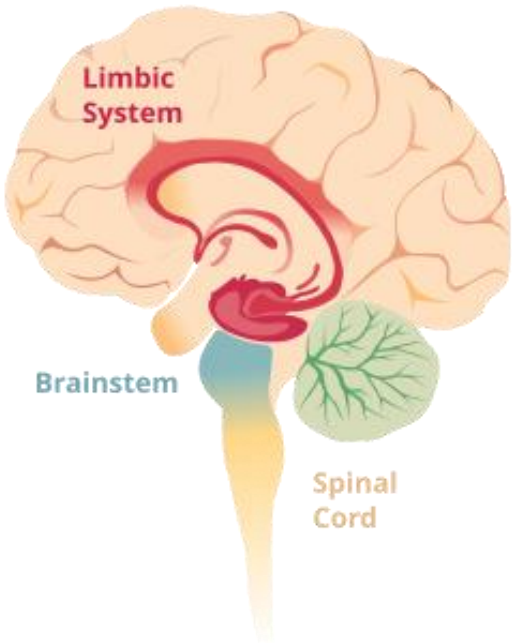


Figure 118. Autonomic nervous system.

Area of the Limbic System in the Brain



Exploring the Solar Plexus

"*Other new and important discoveries have also been made; for instance, we know now that the Silver Cord is grown anew in each life, that one part sprouts from the seed atom of the desire body in the great vortex of the* ***liver****, that the other part grows out of the seed atom of the dense body in the heart, that both parts meet in the seed atom of the vital body in the* ***solar plexus****, and that this union of the higher and lower vehicles causes the quickening. Further development of the cord between the heart and* ***solar plexus*** *during the first seven years has an important bearing on the mystery of childlife, likewise its fuller growth from the* ***liver*** *to the* ***solar plexus****, which takes place during the second septenary period, is a contributory cause of adolescence. Completion of the Silver Cord marks the end of childlife, and from that time the solar energy which enters through the* ***spleen*** *and is tinted by refraction through the prismatic seed atom of the vital body located in the* ***solar plexus****, commences to give a distinctive and individual coloring to the aura which we observe in adults*."
(**Max Heindel,** ***Rosicrucian Cosmo-Conception***)

1. Solar Plexus resembles the sun with nerves that meet in the center that create rays of nerves that radiate outward to many parts of the body

2. Solar Plexus or Celiac Plexus/Ganglion: Termination of splanchnic nerves from the thoracic area

3. Abdominal area: Located behind the stomach in front of the first lumbar vertebra (L1) just below the sternum and above the diaphragm

4. Involuntary actions of organs such as the stomach, liver, gallbladder, pancreas, kidneys, spleen, and intestines, i.e., regulating breathing, peristalsis, and blood pressure, signals/communication between gut and the brain

5. Third Chakra (place of fire, *Manipura*): Yellow color, personal power

6. Regulate metabolism and digestion in response to stressors

7. Both nerves from the sympathetic and parasympathetic nervous system
8. Digestive Issues: Irritable Bowel Syndrome, Acid Reflex

9. During flight-or-flight inhibits peristalsis and redirect blood flow to skeletal muscles

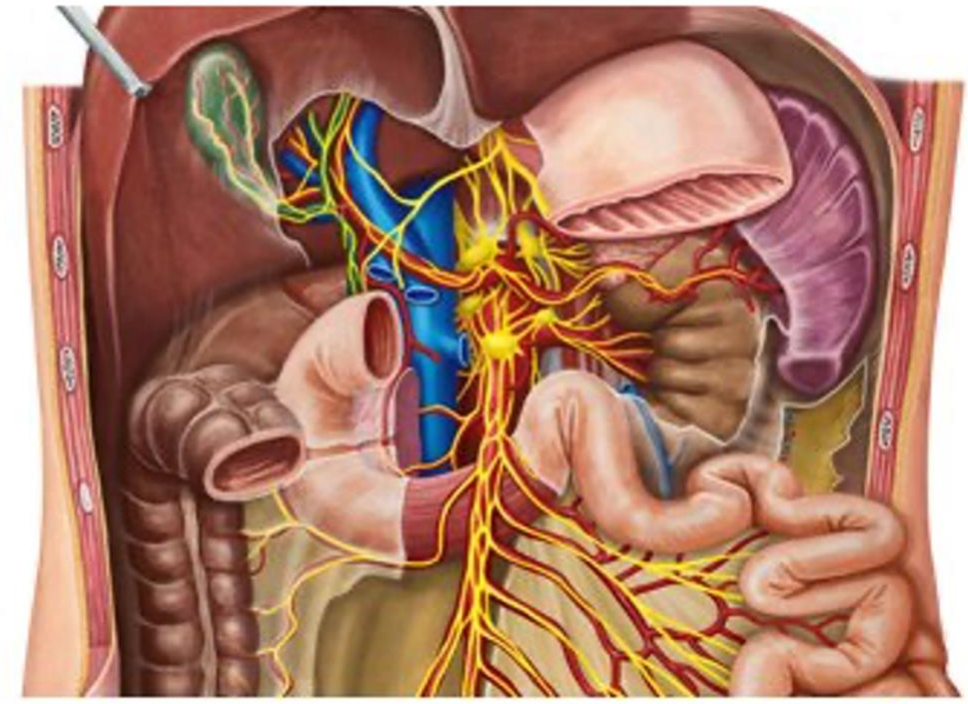
10 Parasympathetic nerves activates when body feels safe and calm (rest and digest)

The atoms of the chemical and life ethers gathered around the nuclear seed atom located in the ***solar plexus*** *are shaped like prisms. They are all located in such a manner that when the solar energy enters our body through the* ***spleen****, the*

refracted ray is red. This is the color of the creative aspect of the Trinity, namely, Jehovah, the Holy Spirit, who rules Luna, the planet of fecundation. Therefore, the vital fluid from the Sun which enters the human body by way of the ***spleen*** *becomes tinged with a pale rose color, often noted by Seers when it courses along the nerves as electricity does in the wires of an electric system. Thus charged, the chemical and life ethers are the avenues of assimilation which preserve the individual, and of fecundation which perpetuates the race*.
(**Max Heindel,** ***Occult Properties of Health and Healing***)

But when a person who is not in perfect health makes a habit of bathing every day, perhaps even twice or three times, an excess of ether is taken from the vital body. The supply entering by way of the spleen is also diminished on account of the loss of tone of the seed-atom located in the ***solar plexus*** *and the attenuated condition of the vital body. Thus, it is impossible for such people to recuperate between such oft repeated depletions, and as a consequence the health of the dense body suffers; they lose strength continually and are apt to become confirmed invalids*. (**Max Heindel,** ***Web of Destiny***)

Solar/Celiac Plexus



Chapter 18. How to Take Care of the Nerve Workers

But the tongue can no man tame; it is an unruly evil, full of deadly poison.
(**James 3:8 KJV**)

1. What do nerve cells need?

2. What are the best foods/drink for the brain workers?

3. In what ways can you treat nerve workers shamefully?

4. What poisons the nerve workers, effects?

5. Why do nerve workers need rest, when?

6. How do you feel when you are properly rested?

7. When does the living temple become beautiful and complete?

8. What should you do after studying hard, why?

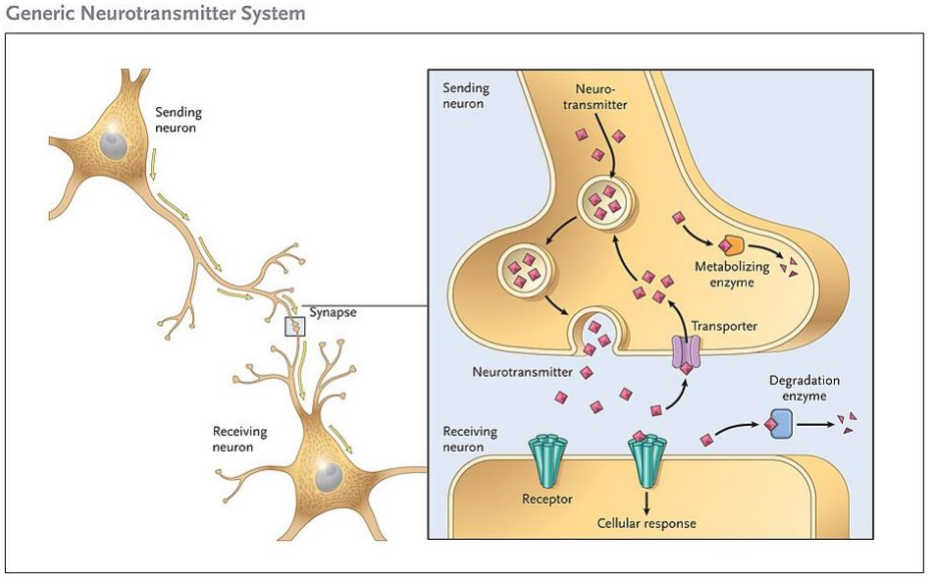
9. Why do we need to be in harmony with the Master Builder?

10. Why is worry so bad for us?

11. What is akin to worry?

12. How does anger affect us?

13. What occurs when you are in harmony with the Master Builder?



*** Exploring the Nervous System ***

Nervous System and Neurons

1. What are the three basic functions of the nervous system?

2. What are the divisions of the nervous system and what does each consist of?

3. What are the two branches of the ANS, function?

4. What is myelination?

5. Draw and label the parts of a typical neuron.

6. What is the gray and white matter?

7. How does a neuron function?

8. What is the Resting Membrane Potential?

9. What are Ion Channels?

10. Describe the action potential in a neuron.

11. What is the all-or-none principle?

12. How does saltatory conduction differ from continuous conduction?

13. What determines the speed of a nerve impulse?

14. How does synaptic transmission occur?

15. What are different neurotransmitters?

Medically Related Terms

- Adrenoleukodystrophy (ALD)
- Amyotrophic Lateral Sclerosis (ALS)
- Alzheimer's Disease
- Bell's Palsy
- Brain Tumors
- Cerebral Aneurysm
- Dementia
- Encephalitis
- Epilepsy and Seizures
- Fibromyalgia
- Guillain-Barre Syndrome
- Parkinson's Disease

Spinal Cord

1. Describe the how the spinal cord is protected?

Describe the internal/external anatomy of the spinal cord.

2. Describe the function of the sensory and motor tracts of the spinal cord

3. Describe a reflex arc and how it maintains homeostasis

4. Identify important reflexes used in diagnosis of disease.

5. Describe the composition and coverings of a spinal nerve

6. What is a plexus, examples in body?

7. How are the spinal nerves distributed in the body?

8. What is an intercostal nerve?

9. What are dermatomes?

10. Describe effects of a spinal cord injury, types?

Medically-Related Terms

- Neuritis
- Poliomyelitis
- Sciatica,
- Shingles
- Spinal Tap

Brain

1. What are the four principal parts of the brain, components, origin?

2. Describe the cranial meninges.

3. Describe the cerebrospinal fluid, circulation, role?

4. What is the blood-brain-barrier and what can/cannot cross it?

5. Describe the structure and function of the brain stem (medulla, pons, midbrain)

6. Describe the structure and function of the midbrain

7. Describe the structure and function of the diencephalon (thalamus and hypothalamus)

8.Describe the structure and function of the cerebrum (lobes, white matter, brain lateralization)

9. Describe the structure and function of the cerebellum

10. What is the limbic system, functions?

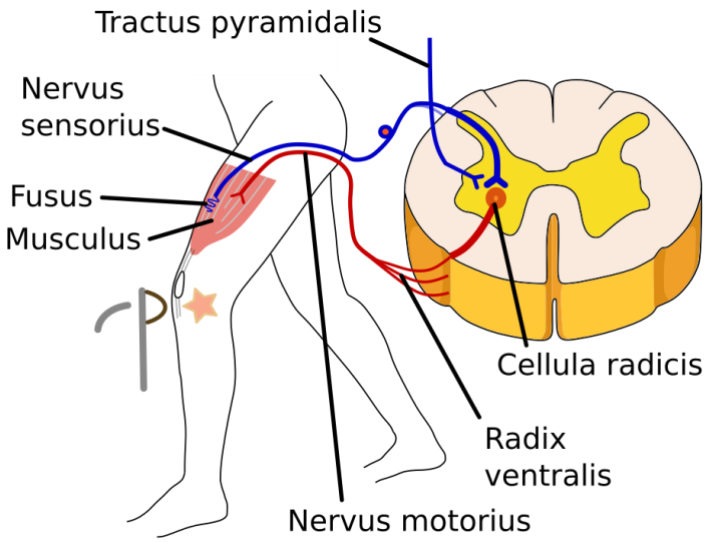
11. What are some neurotransmitters associated with the brain, function?

12. How are the cranial nerves named, numbered, their locations.

13. How does ageing affect the nervous system?

Medically Related Terms

- Hydrocephalus
- Electroencephalogram (EEG)
- Concussion
- Transient Ischemic Attack
- Alzheimer Disease
- Brain Tumors
- Cerebral Palsy
- Parkinson's Disease Multiple Sclerosis
- Dyslexia
- Headache/Migraines
- Reye's Syndrome



https://commons.wikimedia.org/wiki/File:Reflex_arc-La.svg

Chapter 19. The Living Fountain

A good man out of the good treasure of his heart bringeth forth that which is good; and an evil man out of the evil treasure of his heart bringeth forth that which is evil: for of the abundance of the heart his mouth speaketh.
(**Luke 6:45 KJV**)

1. What is our living fountain, how does it look?

2. How large is the heart?

3. Where is the heart in the body?

4. How much rest does the heart get in one day?

5. What is the pericardium, purpose?

6. How is the heart a "*double fountain*"?

7. What is an auricle, located in the heart?

8. What is a ventricle, located in the heart?

9. What are the valves in the heart, located?

10. How does blood through the heart, how much at a time?

11. Why is blood pumped into the heart, how does it change?

12. Why are the walls of the left side of the heart thicker than the right side?

13. How long does it take to squeeze the blood through the heart?

14. What is causing your heart to beat?

15. What happens to your heart when get angry or have a pleasant surprise?

16. Why do we say the heart is where we find the Power of God?

17. What fills the heart with blood?

18. How often does the heart beat on average?

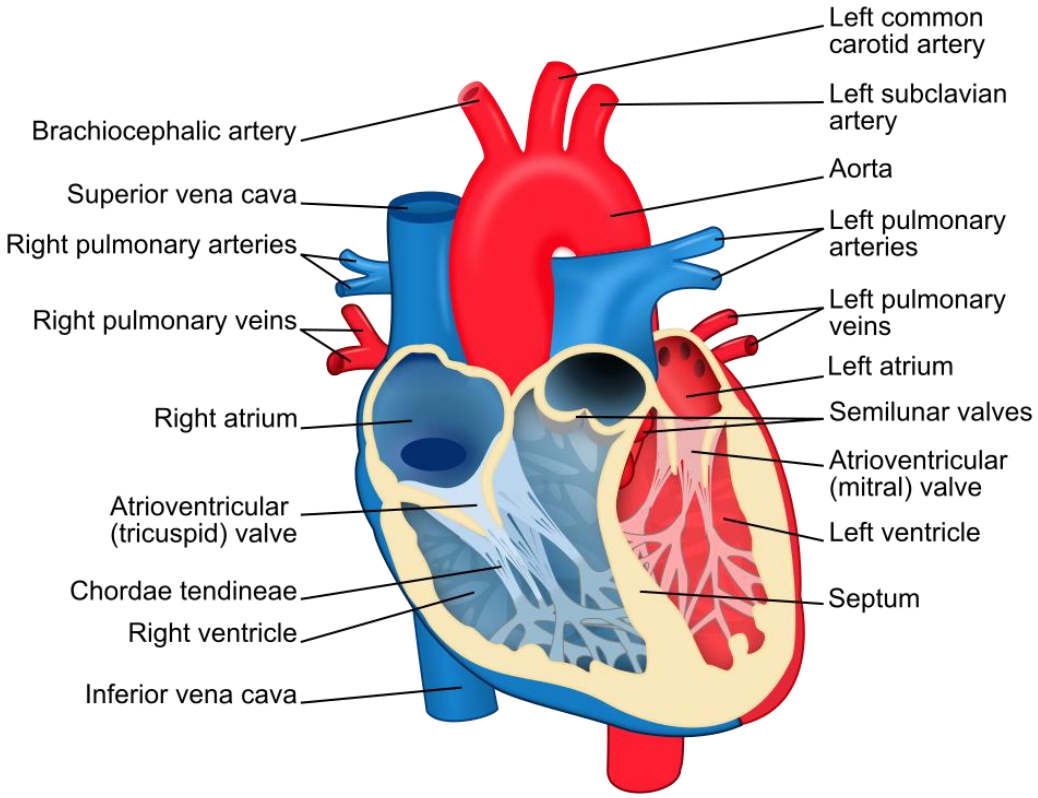
19. How much blood does one heartbeat move?

20. In 24-hours how much blood does the heart lift?

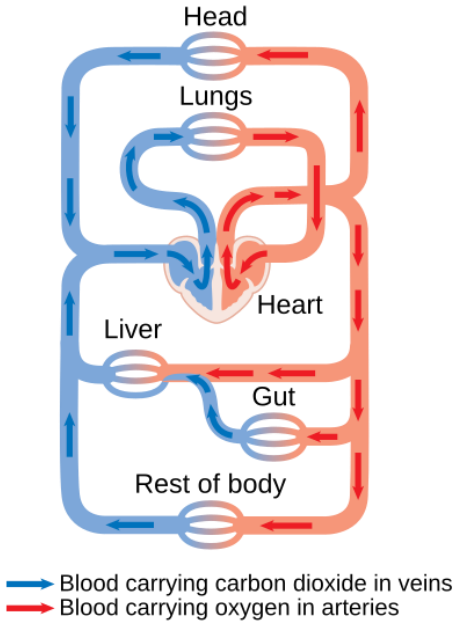
21. How much does the heart rest after pumping blood into the aorta, after 24 hrs.?

22. How many hours of high-tension work does the heart do in one day?

THE HEART



BLOOD CIRCULATION



Chapter 20. The Stream of Life

For it is the life of all flesh; the blood of it is for the life thereof: therefore I said unto the children of Israel, Ye shall eat the blood of no manner of flesh: for the life of all flesh is the blood thereof: whosoever eateth it shall be cut off.
(**Leviticus 17:14 KJV**)

1. What provides life and health within the body?

2. What does blood flow within the body?

3. In addition to blood what other fluid carries nourishment, where?

4. What determines the health of each cell?

5. How much blood does a boy/girl and a man/woman have?

6. Where is the blood found in the body?

7. When do you need more/less blood in parts of your body?

8. What do you see when looking at blood under a microscope?

9. What is the shape of a red corpuscle?

10. What gives the blood cell its red color, change?

11. What is the job of a white corpuscle?

12. How many red and white corpuscles are in a given amount of blood?

13. Why do we get pain and swelling when we are injured?

14. What is fluid of the blood called, percent of blood?

15. What stops the flow of blood when we are bleeding?

16. What does the blood carry within the body, why?

17. How do you keep the stream of life pure and sweet?

18. How do faith and hope effect the body?

19. How does temperature and grief effect the stream of life?

"*Thoughts of worry, fear, and anger interfere with the processes of evaporation in the **spleen**. A speck of plasm is the result, and this is at once seized upon by a thought elemental which forms a nucleus and embodies itself therein. Then it commences to live a life of destruction, coalescing with other waste products and decaying elements whenever formed, making the body a charnel house instead of the temple of an indwelling living Spirit. We may therefore say that every **white corpuscle** which has been taken by an outside entity is to the Ego a lost opportunity. The more of these lost opportunities there are in the body, the less is the body under control of the Ego. Therefore, we find them present in larger numbers in diseased people than in those possessing health. It may also be said that the person of a jovial good nature or one who is devoutly religious and has an absolute faith and trust in divine providence and love, will register many less lost opportunities, or white blood corpuscles, than those who are always worrying and fretting*."
(**Max Heindel, *Rosicrucian Philosophy in Questions and Answers, Vol. 2***)

Both Venus and her higher octave, Uranus, govern the functions of nutrition and growth, but in different ways and for different purposes. Therefore, Venus rules the **thymus gland**, which is the link between the parents and the child until the latter has reached puberty. This gland is located immediately behind the **sternum** or breast bone. It is largest in antenatal life and through childhood while growth is excessive and rapid. During that time the vital body of the child does its most effective work, for the child is not then subject to the passions and emotions generated by the desire body after that comes to birth at or about the fourteenth year. But during the years of growth the child cannot manufacture the ***red blood corpuscles*** as does the adult, for the unborn, unorganized desire body does not then act as an avenue for the Martian forces which assimilate the iron from the food and transmute it into hemoglobin. To compensate for this lack there is stored in the **thymus gland** a spiritual essence drawn from the parents, and with this essence provided by their love the child is able to accomplish the alchemistry of blood temporarily until its desire body becomes dynamically active. Then the **thymus gland** atrophies and the child draws from its own desire body the necessary Martian force. From that time, under normal conditions, Uranus, the octave of Venus, and ruler of the **pituitary body**, takes charge of the function of growth and assimilation in the following manner.
(**Max Heindel, *Message of the Stars***)

In infancy, and up to the fourteenth year, the red marrow-bones do not make all the ***blood corpuscles***. Most of them are supplied by the **thymus gland**, which is largest in the fetus and gradually diminishes as the individual blood-making faculty develops in the growing child. The **thymus gland** contains, as it were, a supply of ***blood corpuscles*** given by the parents, and consequently the child, which draws its blood from that source, does not realize its individuality. Not until the blood is made by the child does it think of itself as "I," and when the **thymus gland** disappears, at the age of fourteen, the "I" feeling reaches its full expression, for then the blood is made and dominated entirely by the Ego.
(**Max Heindel, *Occult Properties of Health and Healing***)

Chapter 21. The Course of the Stream

How much more shall the blood of Christ, who through the eternal Spirit offered himself without spot to God, purge your conscience from dead works to serve the living God? (**Hebrews 9:14 KJV**)

1. What are arteries, largest artery in the body, where does it go?

2. What did Dr. John Harvey discover?

3. What is the pulse, where is it best felt?

4. What is the middle layer of an artery, function?

5. How many arteries are in the body?

6. What are the very fine blood vessels called?

7. Why does blood flow slow in the capillaries, important?

8. What are veins, different from arteries?

9. Why does blood go back to the heart?

10. Which vein empties blood from the legs and organs of the abdomen into the right auricle?

11. Which vein empties blood from the head, neck, arms, and chest into the right auricle?

12. What does the portal vein do?

13. What is the third stream of communication in the body?

14. What is the function of lacteals?

15. What is the function of the lymph?

16. How long do blood cells live?

17. How are veins and arteries controlled, why?

18. What causes you to blush?

19. Why does drinking cause the nose and face to become red?

20. How does alcohol make us think we are warm all over?

21. Why can tight clothes be dangerous?

*** Exploring the Cardiovascular System ***

1. What is the position of the heart in the body?

2. What are the subdivisions of the pericardium?

3. What are the three layers of the heart wall, location, function?

4. Describe the atria and ventricles.

5. What vessels enter/exit the atria and ventricles?

6. What are the valves in the heart, how do they work?

7. Describe the flow of blood in cardiac circulation.

8. What is the structure and function of the heart's conduction system?

9. What are the phases in the cardiac cycle.

10. Describe the impulse om a ventricular contractile fiber

11. What do the components of the ECG represent?

12. What are the heart sounds?

13. What is cardiac output, calculated?

14. What is stroke volume, factors?

15. What is the Frank-Starling law of the heart, important?

16. What is cardiac reserve, important?

17. How is heart rate adjusted?

18. What are the factors of heart disease?

19. How does exercise benefit the cardiovascular system?

20. Describe the timing of the systole and diastole in blood pressure.

Medically-Related Terms

- Cardiopulmonary Resuscitation
- Pericarditis and Cardiac Tamponade
- Rheumatic Fever
- Cardiac Valve Replacement
- Angina Pectoris and Myocardial Infarctions

- Replacement Pacemakers
- Heart Murmurs
- Congestive Heart Failure
- Cardiac Assist Devices
- Risks Factors in Heart Disease
- Cholesterol and Plasma Lipids in Heart Disease
- Atherosclerosis
- Coronary Artery Bypass Grafting
- Angioplasty
- Arrhythmias
- Ventricular Fibrillation
- Cardiac Arrest
- Cardiomegaly
- Palpitation
- Paroxysmal tachycardia

Blood

1. What are the functions of the blood?

2. What are the principal physical characteristics of the blood?

3. What are the components of the blood, function, percent?

4. Where are blood cells produce, process?

5. Describe the structure and function of erythrocytes, numbers, relation to disease.

6. Describe the structure and function of the two types of leukocytes (with each specific type), numbers, relation to disease.

7. How do different leukocytes fight disease?

8. What is the antigen-antibody response, protective?

9. Describe the structure and function of thrombocytes, numbers.

10. How does blood clotting occur?

11. What is the basis for ABO blood grouping?

12. What is the basis for the Rh system?

Medically-Related Terms

- Electrolytes
- Blood Doping
- Reticulocyte Count and Hematocrit
- Leukemia
- Anemia (nutritional, pernicious, hemorrhagic, hemolytic, aplastic, sickle-cell)
- Histocompatibility Testing
- Differential White Blood Cell Count
- Bone Marrow Transplant
- Complete Blood Count
- Hemophilia
- Typing and Cross Matching for Transfusion
- Infectious Mononucleosis
- Gamma Globulin
- Septicemia
- Hemolytic Disease of Newborns

Blood Vessels

1. Describe the structure and function of arteries, arterioles, capillaries, venules, and veins, differences?

2. How are capillaries adapted for exchanging materials, process?

3. What is the velocity of blood flow in the different blood vessels?

4. What does blood pressure and pulse represent?

5. Identify factors that affect blood pressure.

6. Identify factors that assist in returning venous blood to the heart.

7. How is blood pressure regulated in the body?

8. What are the major divisions of the aorta and regions supplied?

9. What are the three major groups of systemic veins?

10. What is hepatic portal circulation, how?

11. What is pulmonary circulation, how?

12. Describe fetal circulation.

13. Where is blood distributed within the body by percent?

14. What is the cardiovascular center, function?

15. What are baroreceptors and chemoreceptors in blood vessels, function?

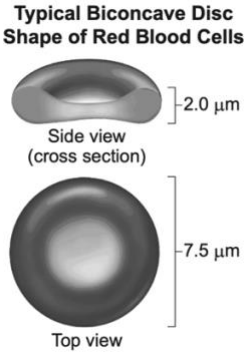
16. How do different hormones affect blood pressure?

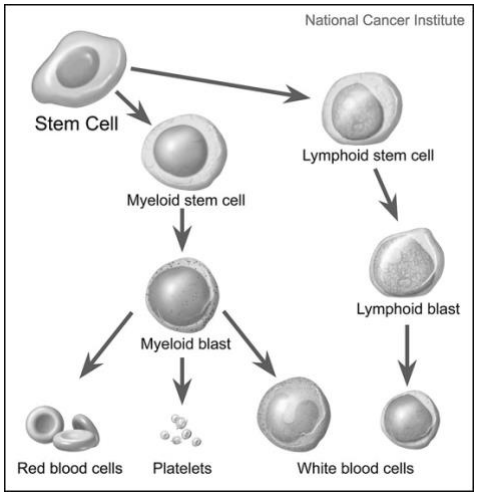
17. How does a sphygmomanometer work?

18. Describe the flow of blood/circulatory routes within the body.

Medically Related Terms

- Varicose Veins
- Shock
- Edema
- Syncope
- Aneurysm
- Coronary Artery Disease
- Deep-Venous Thrombosis
- Raynaud's Disease
- Hypertension





Chapter 22. Antechambers

And when he had said this, he breathed on them, and saith unto them, Receive ye the Holy Ghost: (**John 20:22 KJV**)

1. Where is the blood purified?

2. What happens when the air enters the nose?

3. Where are the nasal chambers, function?

4. What is the septum?

5. What is the proper way for air to enter the lungs?

6. What happens if we breathe through the mouth?

7. What is snoring?

8. What is the larynx, structure and function?

9. What is the epiglottis, function?

10. Why do we cough sometimes?

11. What is the Adam's Apple, location?

12. How do the vocal cords work, change sound?

13. What is the sounding board for the vocal cords, use to vary tone?

14. What is one of God's best gifts to man, why?

15. In addition to the vocal cords what else is used is speech?

16. What determines our voice from the living temple?

17. What greatly injures our voice?

18. How can you keep your voice clear and fresh?

Thou hidest thy face, they are troubled: Thou takest away their breath, they die, and return to their dust. Thou sendest forth thy spirit, they are created: And thou renewest the face of the earth. (**Psalm 104:29-30 KJV**)

Chapter 23. The Breathing Rooms

Then the channels of waters were seen, and the foundations of the world were discovered at thy rebuke, O Lord, at the blast of the breath of thy nostrils.
(**Psalm 18:15 KJV**)

1. How does air get to the trachea?

2. What is the common name for the trachea?

3. How can we describe the trachea?

4. What are the bronchi, where do they go?

5. How does the air from the bronchi reach the air sacs?

6. What is the breathing room called?

7. What are the lungs enclosed within and protected by?

8. Where is the apex of each lung located?

9. Where does the base of the lungs rest?

10. What is the constant double communication between the living fountain and the breathing room?

11. What is the shape of the breathing room like?

12. How many air sacs are in the lungs, surface area?

13. Where are the capillaries in the lungs, why?

14. Why are the walls of air sacs thin and moist?

15. Why are the walls of the breathing tubes lined with cilia?

16. What is the root of the lung made up of, what happens there?

17. How many times do we breathe on average?

18. What is the most important muscle in breathing, why?

19. How is air drawn into the lungs?

20. How is air expelled from the lungs?

21. What happens when you sing or talk?

22. What does the strength of the voice depend upon?

23. How much air do you breathe in?

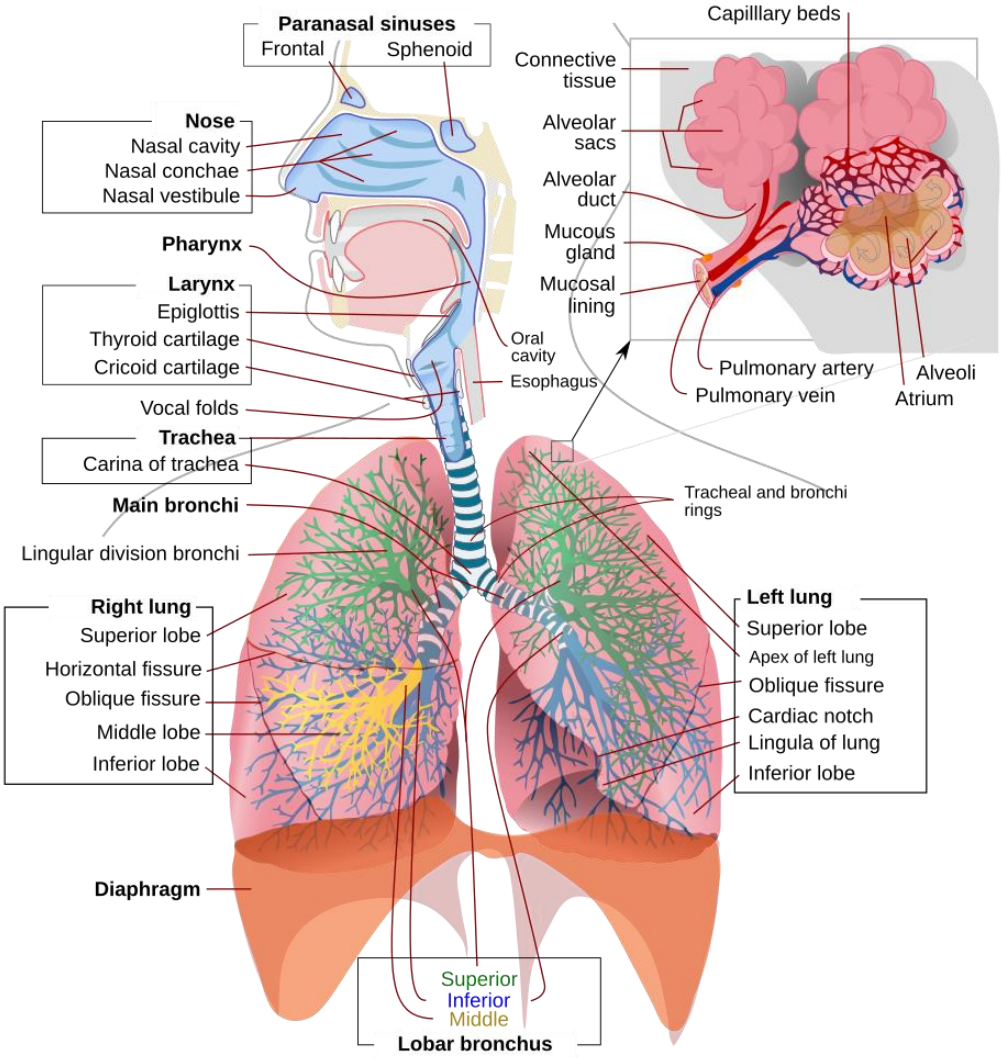
24. What is the difference between complemental air and tidal air?

25. Why do we need extra air sometimes?

26. What is supplemental air?

27. What is residual air?

The Human Respiratory System



Chapter 24: The Breath of Life

The spirit of God hath made me, and the breath of the Almighty hath given me life. (**Job 33:4 KJV**)

1. What is the mystery of God?

2. What must every living thing do?

3. What is air composed of before/after leaving the body?

4. What else does he breathe that comes out of the body contain?

5. Why do we sometimes get headaches in closed rooms?

6. What happens to people in poorly ventilated houses and work areas?

7. Why should we regularly air our rooms, clothes, and bedding?

8. What temperature is best for the air we breathe?

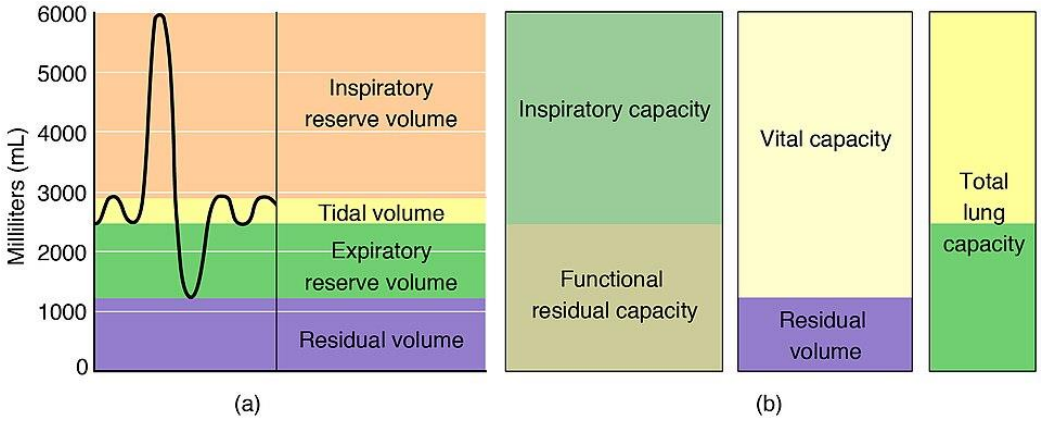
9. Why are tight fitting clothes unhealthy?

10. How can you strengthen your lungs?

11. How should you sit or stand?

12. In what ways can you use deep breathes to make you more comfortable?

Lung Volumes



*** Exploring the Respiratory System ***

1. Describe the Structure and function of the
    Nose
    Pharynx
    Larynx
    Trachea
    Bronchi
    Lungs

2. Describe the process of pulmonary ventilation

3. Describe the different modified respiratory movements: coughing, sneezing, sighing, yawning, sobbing, crying, laughing, and hiccupping

4. Describe the different air volumes in breathing: tidal, inspiratory reserve, expiratory reserve, residual, minimal volumes

5. Describe the different lung volumes inspiratory, functional residual, vital and total lung capacity

6. Describe the exchange of oxygen and carbon dioxide in the lungs (Boyle's law Charles law, Henry's Law, Dalton's law, etc.)

7. Describe internal and external respiration.

8. Describe how oxygen and carbon dioxide are transported in the blood.

9. Describe how respiration is controlled (nervous control, respiratory center)

10. Describe the steps in inspiration and expiration (bell jar model)

11. How does hemoglobin transport respiratory gases?

12. How is the voice produced?

13. What are Lobes, Fissures, and Lobules in the lungs?

14. How does the respiratory system protect itself?

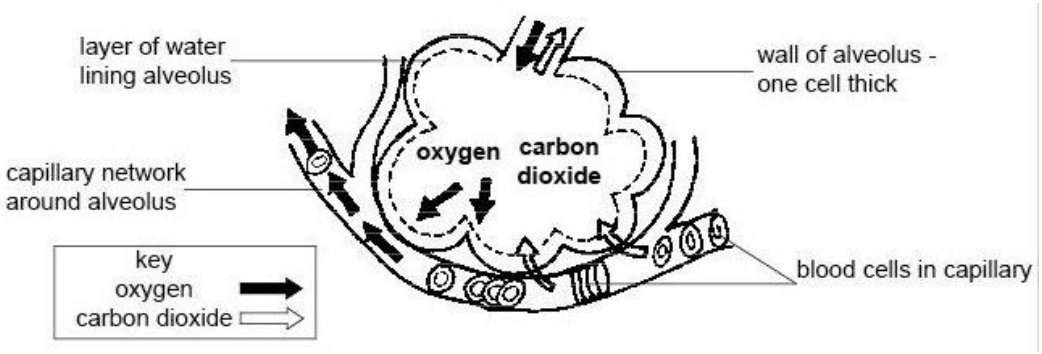
15. How is blood supplied to the lungs?

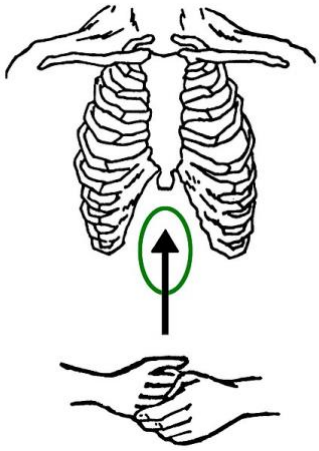
Medically-Related Terms

- Rhinoplasty
- Laryngitis
- Tracheostomy
- Intubation
- Pneumothorax

- Hemothorax
- Pleurisy
- Nebulization
- Hyperbaric Oxygenation
- Carbon Monoxide Poisoning
- Pneumonia
- Hypoxia
- Asthma
- Bronchitis
- Emphysema
- Sudden Infant Death Syndrome
- Common Cold/Influenza
- Pulmonary Embolism
- Pulmonary Edema
- Cystic Fibrosis
- Cardiopulmonary Resuscitation
- Diphtheria
- Dyspnea
- Heimlich Maneuver
- Rales

Air Sac Gas Exchange



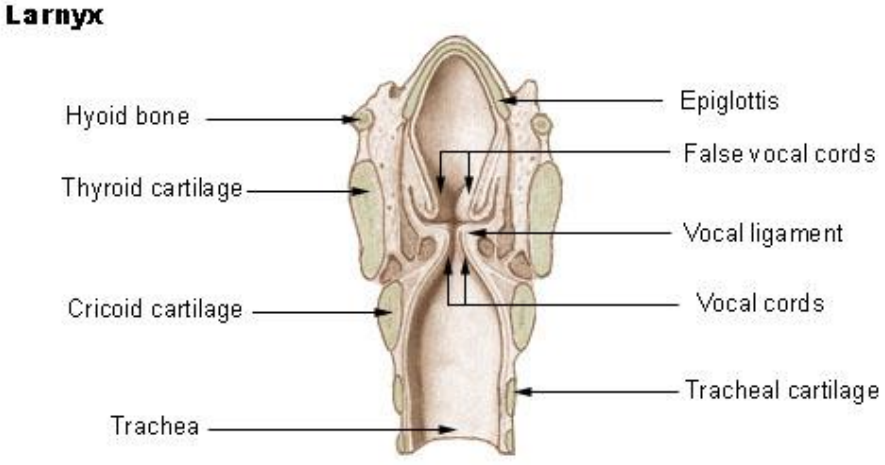


Heimlich Maneuver

*"When the aspirant to the higher life begins to curb these excesses more and more, and to devote his attention to spiritual thoughts and efforts, the trained clairvoyant can perceive the unused sex force commencing to ascend. It surges upward in stronger and stronger volume, ... traversing the **heart** and the **larynx** or the **spinal cord** and the **larynx** or both, and then passing directly between the **pituitary body** and the **pineal** gland toward the dark point at the root of the nose where "The Silent Watcher," the highest spirit, has its seat*."
(**Max Heindel, Rosicrucian Cosmo-Conception**)

"*When the Ego entered into possession of its vehicles it became necessary to use part of this force for the building of the **brain** and **larynx**, which was originally a part of the creative organ. The **larynx** was built while the dense body was yet bent together in the baglike shape already described, which is still the form of the human embryo. As the dense body straightened and became upright, part of the creative organ remained with the upper part of the dense body and later became the **larynx**.*

*"Thus the dual creative force which had hitherto worked in only one direction, for the purpose of creating another being, became divided. One part was directed upward to build the **brain** and **larynx**, by means of which the Ego was to become capable of thinking and communicating thoughts to other beings*."
(**A Student, *The Mystery of the Ductless Glands***)



Chapter 25. A Living Canal

And he humbled thee, and suffered thee to hunger, and fed thee with manna, which thou knewest not, neither did thy fathers know; that he might make thee know that man doth not live by bread only, but by every word that proceedeth out of the mouth of the LORD doth man live. (**Deuteronomy 8:3 KJV**)

1. Why is food needed in a living temple?

2. What is digestion?

3. How long is the alimentary canal?

4. What are the stopping stations in the alimentary canal?

5. What two smaller canals empty into the colon?

6. Where is the alimentary canal in the body?

7. What is the role of the teeth?

8. What are the milk teeth, how many, when do they appear/replaced?

9. How are the teeth different, why?

10. What is mastication?

11. What is the structure of a tooth?

12. What happens when teeth are broken or damaged?

13. How can we describe the outer entrance to the living canal?

14. What does the tongue do while you are eating?

15. Why is the tongue called "*an unruly evil*"?

16. What are the functions of the salivary glands, where are they located?

17. What happens if food is swallowed too soon?

18. Why is chewing gum not beneficial?

19. How do we swallow?

20. What are the seven doors of the pharynx?

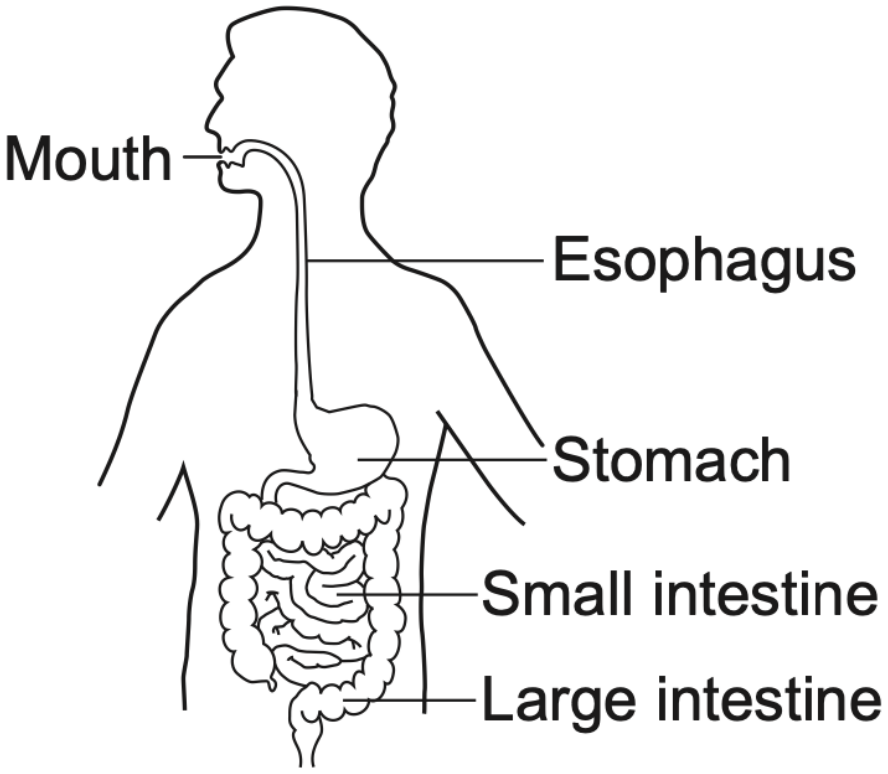
21. What is the gullet, how is food moved here?

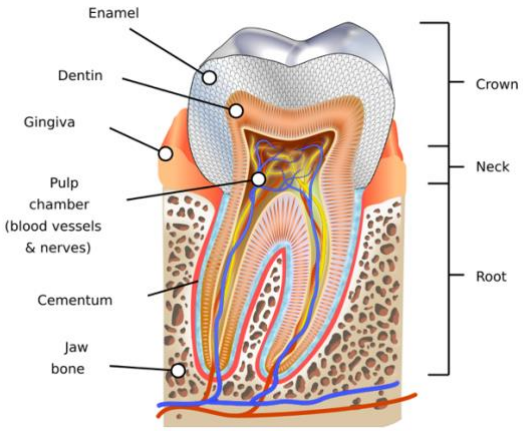
22. What do the two thin layers of muscle do in the gullet?

23. Where does the gullet lead to?

24. How long is the trip down the esophagus?

25. What is the process of swallowing called?





Tooth Anatomy

Chapter 26. Where Building Materials are Mixed

Meats for the belly, and the belly for meats: but God shall destroy both it and them. Now the body is not for fornication, but for the Lord; and the Lord for the body. (**1 Corinthians 6:13 KJV**)

1. In simple terms what is the stomach?

2. In a grown man where is the stomach?

3. How can we describe the stomach?

4. What is the opening (upper gate) into the stomach called, the lower gate?

5. What do the walls of the stomach do, how?

6. What is the function of the peptic glands, how much?

7. What controls the stomach?

8. What did Dr. Beaumont learn from Alexis St. Martin's body?

9. What is peristalsis?

10. What digests starch?

11. What does gastric juice act upon?

12. Where is digestion finished?

13. What is chyme?

14. Why do we vomit?

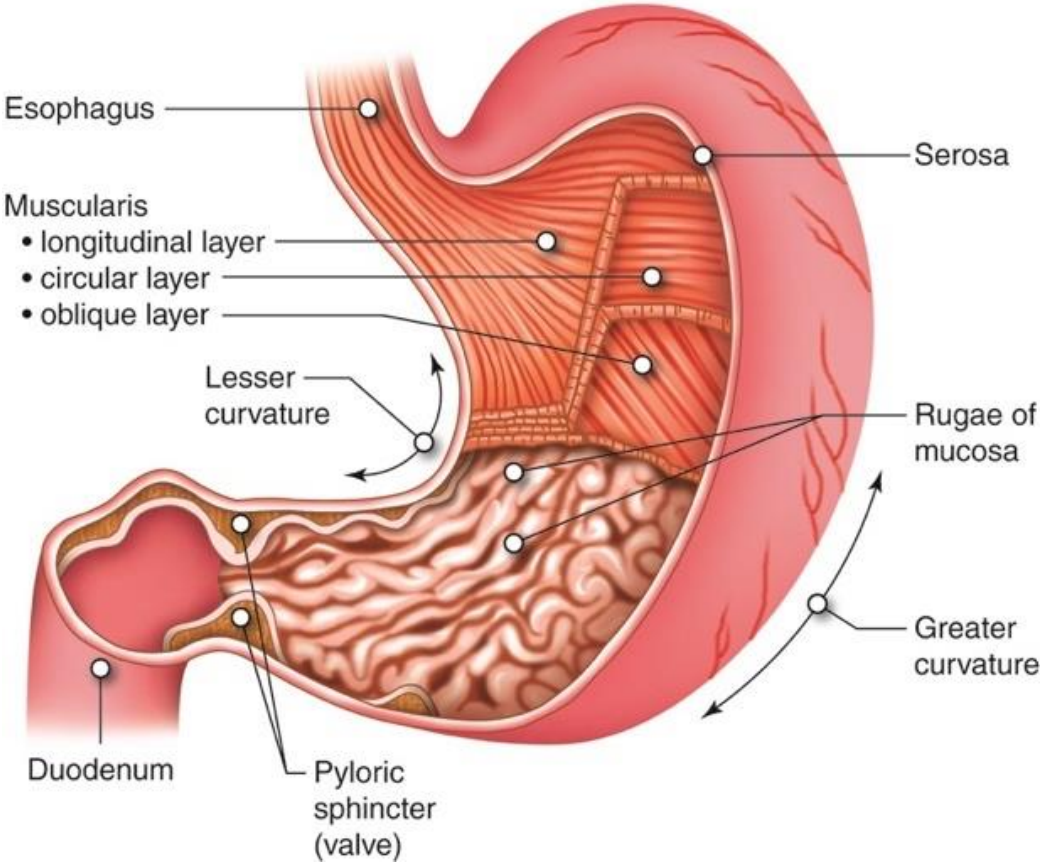
15. What happens sometimes when we drink ice water

16. How long do the muscles of the stopping station work after each meal?

17. What happens if you eat often?

18. How do you keep the living canal clean?

From the fruit of a man's mouth his stomach is satisfied; he is satisfied by the yield of his lips. (**Proverbs 18:20 KJV**)



"Digestion of flesh food requires much more powerful chemical action and speedy elimination of the waste than that of a vegetable diet as proved by chemical analysis of the gastric juices from animals, and by the fact that the intestines of Herbivora are many times longer than those of a carnivorous animal of even size. Carnivora easily become drowsy and averse to exertion.

When prodded by the pangs of hunger the ferocious wolf does indeed pursue its prey with unwavering perseverance, and the spring of the crouching king of beasts overmatches the speed of the wing-footed deer. By ambush the feline family foil the fleetest in their attempts to escape. The cunning of the fox is proverbial, and the slinking nocturnal habits of the hyena and kindred scavengers illustrate the depth of depravity resulting from a diet of decayed flesh.

The vices generated by flesh eating may be said to be lassitude, ferocity, low cunning, and depravity. We may tame the herbivorous ox and elephant. Their diet makes them docile and stores enormous power which they obediently use in our service to perform prolonged and arduous labor. The flesh food required by the constitutional peculiarities of Carnivora makes them dangerous and incapable of thorough domestication. A cat may scratch at any moment, and the muzzling ordinances of large cities are ample proof of the danger of dogs. Besides, energy contained in the diet of Carnivora is so largely expended in digestion that they are drowsy and unfitted for sustained labor like the horse or elephant."

- Max Heindel, *Gleanings of a Mystic*

Chapter 27. Winking Valves and Living Pumps

I am poured out like water, and all my bones are out of joint: my heart is like wax; it is melted in the midst of my bowels. (**Psalm 22:14 KJV**)

1. How can we describe the small intestines, location in body?

2. What is the duodenum?

3. What two digestive fluids are poured into the duodenum, from where?

4. What does the pancreatic juice do?

5. What does the bile do?

6. What do the intestinal juices do?

7. What are the folds in the intestines called, how many are there?

8. How do the winking folds appear under the microscope?

9. How can we describe the villi; how many are there?

10. What is the function of the villi?

11. What happens in the fifth stage of absorption?

12. What happens to the foods that don't take one of the two routes?

13. Why does the movement of food slow in the intestines?

14. Which digested foods go into the lacteal and the blood vessels?

15. What is the large reservoir of fat in the body, location?

16. What organ does the bread route go to?

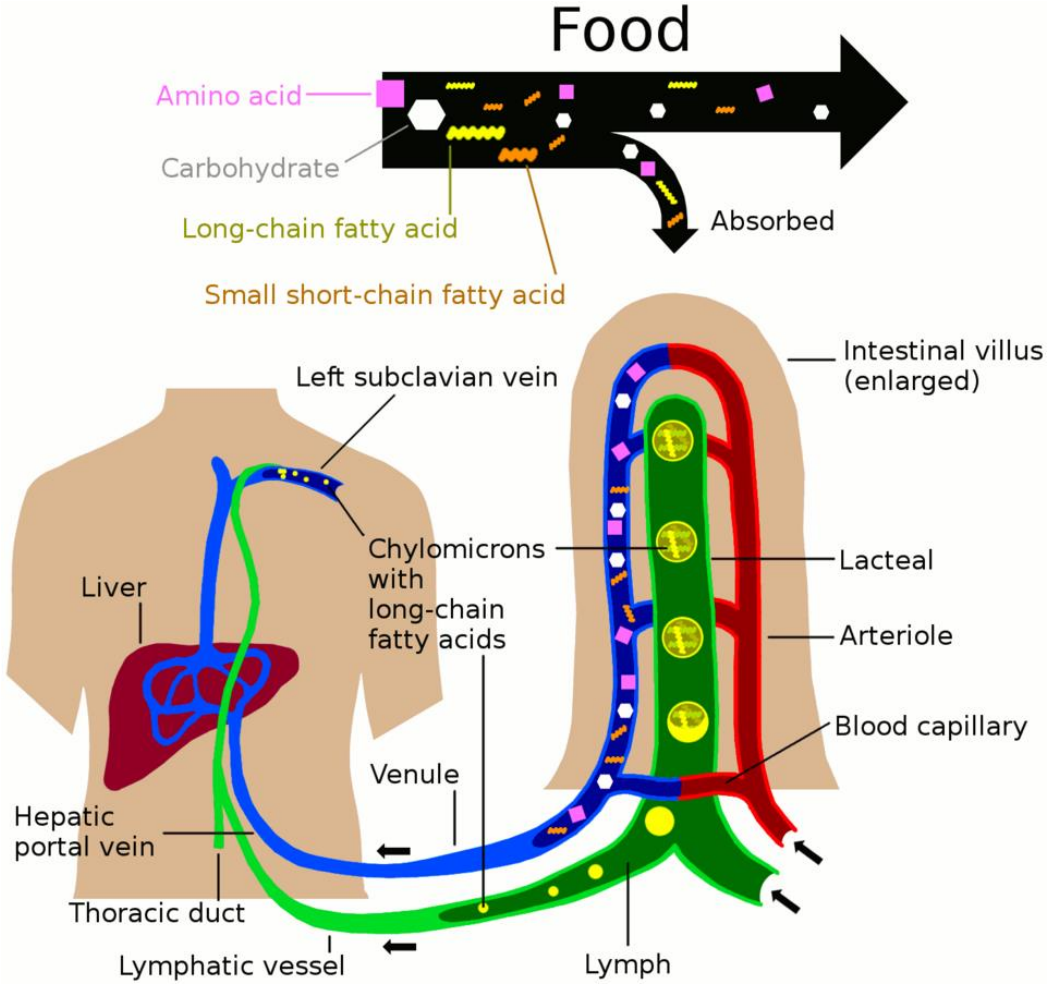
17. What is assimilation?

18. How should we make sure not to waste food or energy?

Cramps in the intestines, wind, colic, malnutrition, diarrhea, constipation, peritonitis, cholera, dysentery, worms, catarrh of the bowels, and appendicitis may result from afflictions in Virgo. – **Max Heindel, *Astro Diagnosis***

We do not assimilate all the protein and mineral salts which are contained in the coarsest portions of the whole wheat. But while the white bread is almost entirely digested and leaves but little ash, provided of course that it is well made, the coarser particles of the whole wheat flour pass through the intestinal tract undigested; they massage them, so to speak, irritate them and induce a flow of blood which keeps the intestines sweet and healthy. They do not pack as closely as the little residue left from highly concentrated foods, and therefore they take with them in the air spaces noxious gases, leaving the digestive tract pure and clean.
– Max Heindel, *Occult Principles of Health and Healing*

Absorption of Digested Food in the Small Intestines by the Villi



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Chapter 28. The Inner Door

Mine eyes do fail with tears, my bowels are troubled, my liver is poured upon the earth, for the destruction of the daughter of my people; because the children and the sucklings swoon in the streets of the city. (**Lamentations 2:11 KJV**)

1. What inner door must most of the materials of food and drink go through?

2. Where do sixty percent of the fats go in the body?

3. Where is the inner door?

4. What is the structure of the liver, locations?

5. How can we describe the liver?

6. Why is the liver a gland?

7. What are lobules?

8. What vein carries the blood to the liver?

9. What happens to the blood that enters the liver?

10. What happens to the good/bad materials that come into the liver?

11. What is bile, where is it stored, how much per day?

12. What happens to the poison and other harmful substances?

13. Where are some of the good materials stored?

14. What is the liver sugar called, function?

15. Why is the liver a "*divining cup*"?

16. What happens when we eat too much candy and sugar?

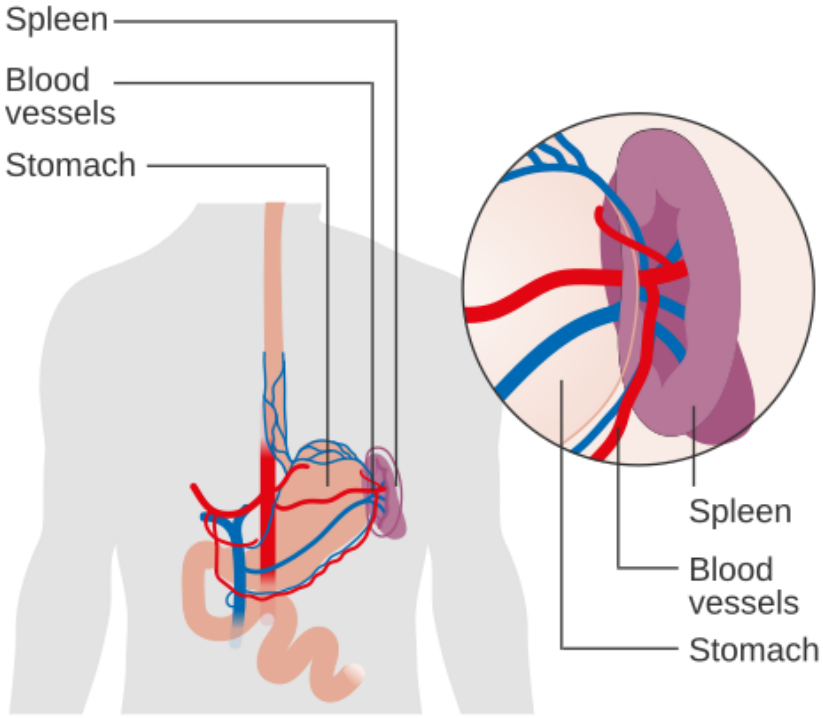
17. How do we keep poisons out of the body?

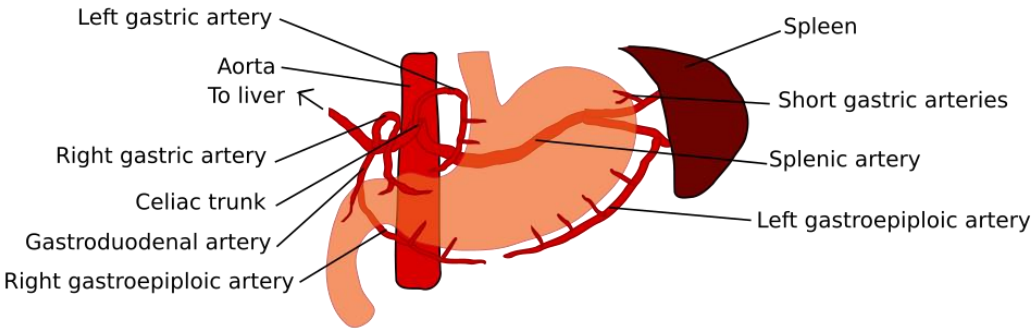
18. How is the liver supplied with food and oxygen?

19. What is the spleen, location, function?

The spleen is the entrance gate of forces which vitalize the body. In the etheric counterpart of that organ solar energy is transmuted to vital fluid of a pale rose color. Thence it spreads all over the nervous system, and after having been used in the body it radiates in streams, much as bristles protrude from a porcupine.
– **Max Heindel, *Rosicrucian Mysteries***

The Spleen





It should also be remembered that whenever disease manifests in the physical vehicle that part of the vital body has first become thin, attenuated, and diseased, and it was its failure to supply the necessary vital energy that caused the manifestation of physical symptoms of ill-health. Conversely, when health returns, the vital body is the first to pick up and this convalescence is then manifested in the dense body. Therefore, if the physical spleen is diseased, it is a foregone conclusion that the etheric counterpart is also in subnormal health, and the wisdom of removing the organ is doubtful. However, if it is done, the body will seek to accommodate itself to the new conditions and the etheric counterpart of the spleen with continue to function as before.

– **Max Heindel, *Rosicrucian Philosophy in Question and Answers, Vol. 2***

*** Exploring the Digestive System ***

1. Describe the structure and function of the GI tract.

2. Describe the structure and function of the accessory structures:
    a. Teeth
    b. Tongue
    c. Salivary glands
    d. Liver
    e. Gallbladder
    d. Pancreas

3. Describe how digestion begins in the mouth.

4. Describe deglutination and the role of the esophagus.

5. Describe the structure and function of the stomach for digestion and its adaptations

6. Describe how digestion occurs in the stomach, regulated and absorption.

7. Describe the structure and function of the pancreas, its enzymes, type of digestion.

8. Describe the structure and function of the liver in bile production, emulsification, and metabolism of nutrients.

9. Describe the structure and function of the gallbladder in storing and concentrating bile.

10. Describe the structure and function of the small intestines in digestion and absorption, villi for lymph and blood.

11. Describe the structure and function of the large intestines in digestion, vitamin synthesis, and water reabsorption.

12. Describe the reflex of defecation.

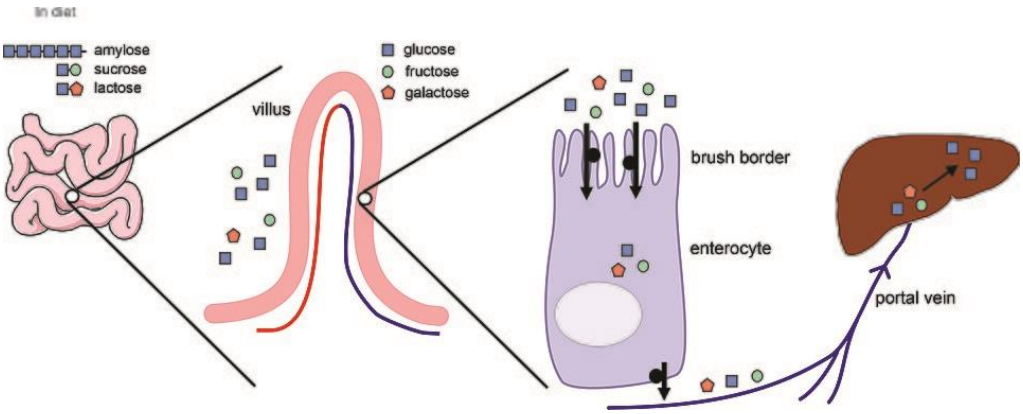
13. How does mechanical digestion differ from chemical digestion?

14. Identify and describe the digestive enzymes and their ideal conditions.

Medical-Related Terms

- Mumps
- Root Canal Therapy
- Achalasia and Heartburn
- Pylorospasm and Pyloric Stenosis
- Endoscopy
- Histamine Receptor Blockers
- Vomiting
- Jaundice
- Lactose Intolerance
- Hemorrhoids
- Diarrhea
- Constipation
- Dietary Fiber
- Dental Caries
- Periodontal Disease
- Peptic Ulcer Disease
- Appendicitis
- Tumors
- Diverticulitis
- Cirrhosis
- Hepatitis
- Gallstones
- Anorexia Nervosa
- Bulimia
- Canker
- Colitis
- Colostomy
- Enteritis
- Flatus
- Hernia
- Inflammatory Bowel
- Irritable Bowel
- Nausea
- Pancreatitis
- Traveler’s Diarrhea

Carbohydrate Digestion



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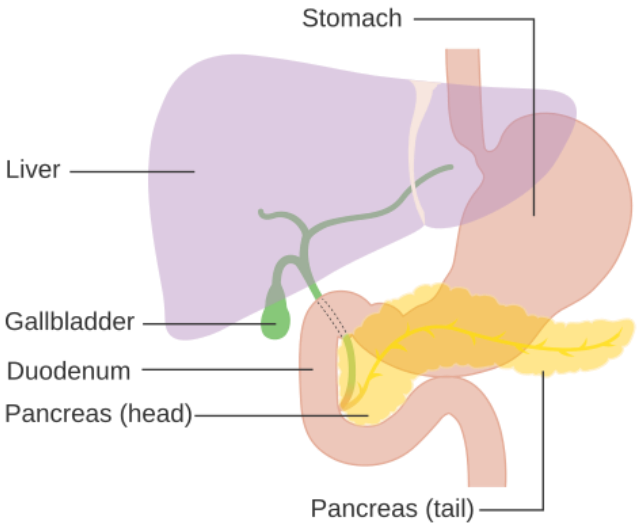
ANATOMY AND PHYSIOLOGY CORRELATED TO THE ZODIAC

VIRGO—Abdominal region, large and small intestines, lower lobe of liver, spleen, duodenum, chylification, peristalsis of the bowels.

PHYSIOLOGICAL AFFLICTIONS OF VIRGO—Peritonitis, malnutrition, dysentery, colic, constipation, diarrhea, cholera, typhoid, appendicitis, tapeworm.

- Max Heindel, *Astro-Diagnosis*



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Chapter 29. The Muscle Workers

The flakes of his flesh are joined together: they are firm in themselves; they cannot be moved. (**Job 41:23 KJV**)

1. How many muscles is a baby born with?

2. How is a muscle named?

3. What are muscles made up of?

4. What are the two types of muscle fibers?

5. How do voluntary muscles appear under the microscope?

6. What are straited muscles?

7. What is a tendon?

8. What is the largest tendon?

9. What is the longest/smallest muscle in the body?

10. How are muscles arranged?

11. How do muscles do work?

12. What do the muscles respond to?

13. What other functions do muscles provide in the body?

14. How do muscles get oxygen and food?

15. What percent of the bodies heat do the muscles provide?

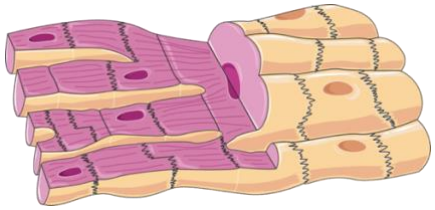
16. What muscles in the body are involuntary?

17. What controls the involuntary muscles?

18. What happens when you get a chill?

19. How are muscles kept in good condition/healthy?

Cardiac Muscle



*** Exploring the Muscular System ***

1. How can we describe skeletal muscle tissue?

2. How can we describe cardiac muscle?

3. How can we describe smooth muscle?

4. What are the three important functions of muscle tissue?

5. What are the four characteristics of muscle tissue?

6. What is facia?

7. What is a motor unit, strength of contraction?

7. What other connective tissue is associated with muscle?

8. What are tendons, function?

9. What is a motor neuron, function?

10. How does muscle contract, the sliding filament mechanism?

11. What is muscle tone, function?

12. How do muscles help maintain the body temperature?

13. What is a refractory period?

14. What are the three types of skeletal muscle fibers?

15. How does cardiac muscle compare to skeletal muscle?

16. What are Z discs?

17. How does smooth muscle compare to skeletal muscle?

18. What is muscle fatigue, caused?

19. What is a myogram and its periods?

20. What is recruitment, important?

21. What is active and passive tension?

22. How do isotonic and isometric contractions differ?

Medically-Related Terms

- Tenosynovitis
- Electromyogram
- Rigor Mortis
- Hypotonia and Hypertonia
- Exercised-Induced Muscle Damage
- Muscular Atrophy and Hypertrophy
- Anabolic Steroids
- Fibromyalgia
- Muscular Dystrophies
- Myasthenia Gravis

Movement

1. How do skeletal muscles produce movements?

2. How do bones and muscles act as levers and fulcrums?

3. What are the three types of levers, examples?

4. What are the different joints, examples?

5. What are ligaments, function?

6. What is a prime mover, antagonist, synergist, and fixator?

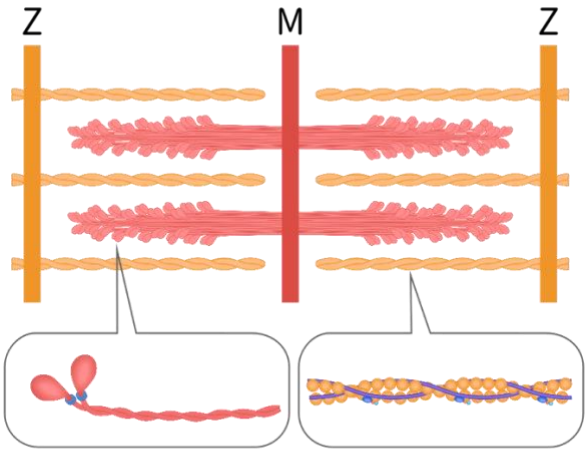
7. How are skeletal muscles named?

8. What are typical running injuries?

Medically Related Terms

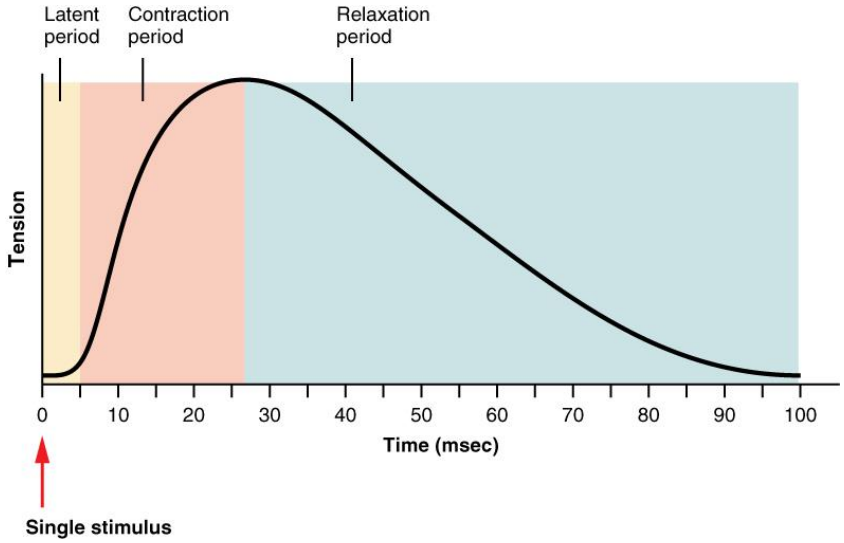
- Intramuscular Injections
- Muscle relaxers
- Tetanus
- Torn Achilles Tendon
- Tennis Elbow
- Arthritis/Osteoarthritis
- Rheumatoid Arthritis
- Gout
- Muscle Strain
- Polymyositis
- Amyotrophic Lateral Sclerosis (ALS)
- Bursitis

Sliding Filaments of Muscle Fibers Contraction



The love and unity in the World of the Life Spirit find their illusory counterpart in the Etheric Region, to which we are correlated by the vital body, which latter promotes sex love and sex union. The Life Spirit has its seat primarily in the ***pituitary body*** *and secondarily in the* ***heart****, which is the gateway of the blood that nourishes the* ***muscles****.* (**Max Heindel,** ***Rosicrucian Cosmo-Conception***)

Myogram of a Muscle Twitch



Chapter 30. The Living Framework of the Temple

Be not wise in thine own eyes: fear the Lord, and depart from evil. It shall be health to thy navel, and marrow to thy bones. (**Proverbs 3:7-8 KJV**)

1. How long does it take for the living framework to reach full size?

2. How many bones are in the body?

3. How many bones make up the skull?

4. What is the fontanelle?

5. How many bones in the face?

6. What are hardest bones in the body, how many?

7. What is the backbone composed of, function?

8. What does the spinal column rest upon?

9. What does the skull rest upon?

10. Why is the spinal column curved?

11. What forms the upper trunk room?

12. What is the framework of the shoulders?

13. What is the framework of the arm?

14. What is the framework of the hand?

15. What is the function of the hips?

16. What is the largest bone in the body?

17. What is the framework of the leg?

18. What is the framework of the foot?

19. What is marrow, found?

20. Why are bones of the face/head hollow?

21. What are the places where bones are fastened together?

22. What are the different types of joints?

23. What is cartilage, function?

24. What are ligaments, function?

25. What is a sprain?

26. What functions do the bones provide?

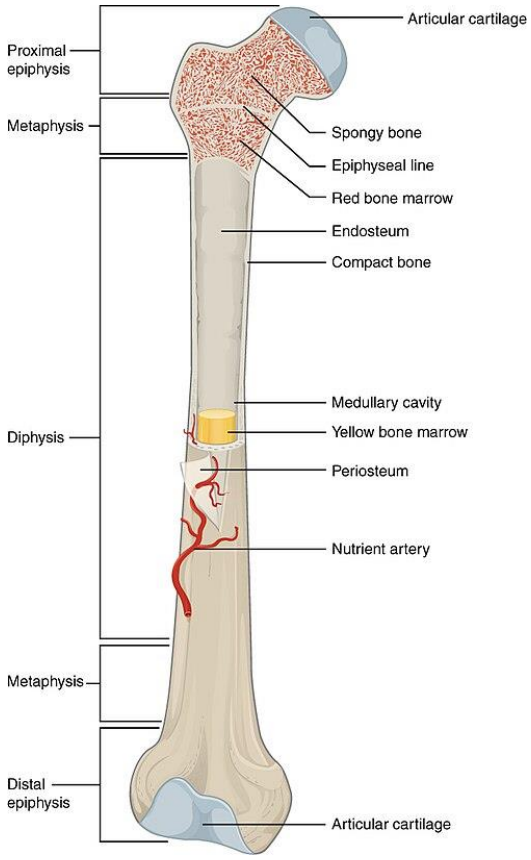
27. What are the two kinds of material in the bones?

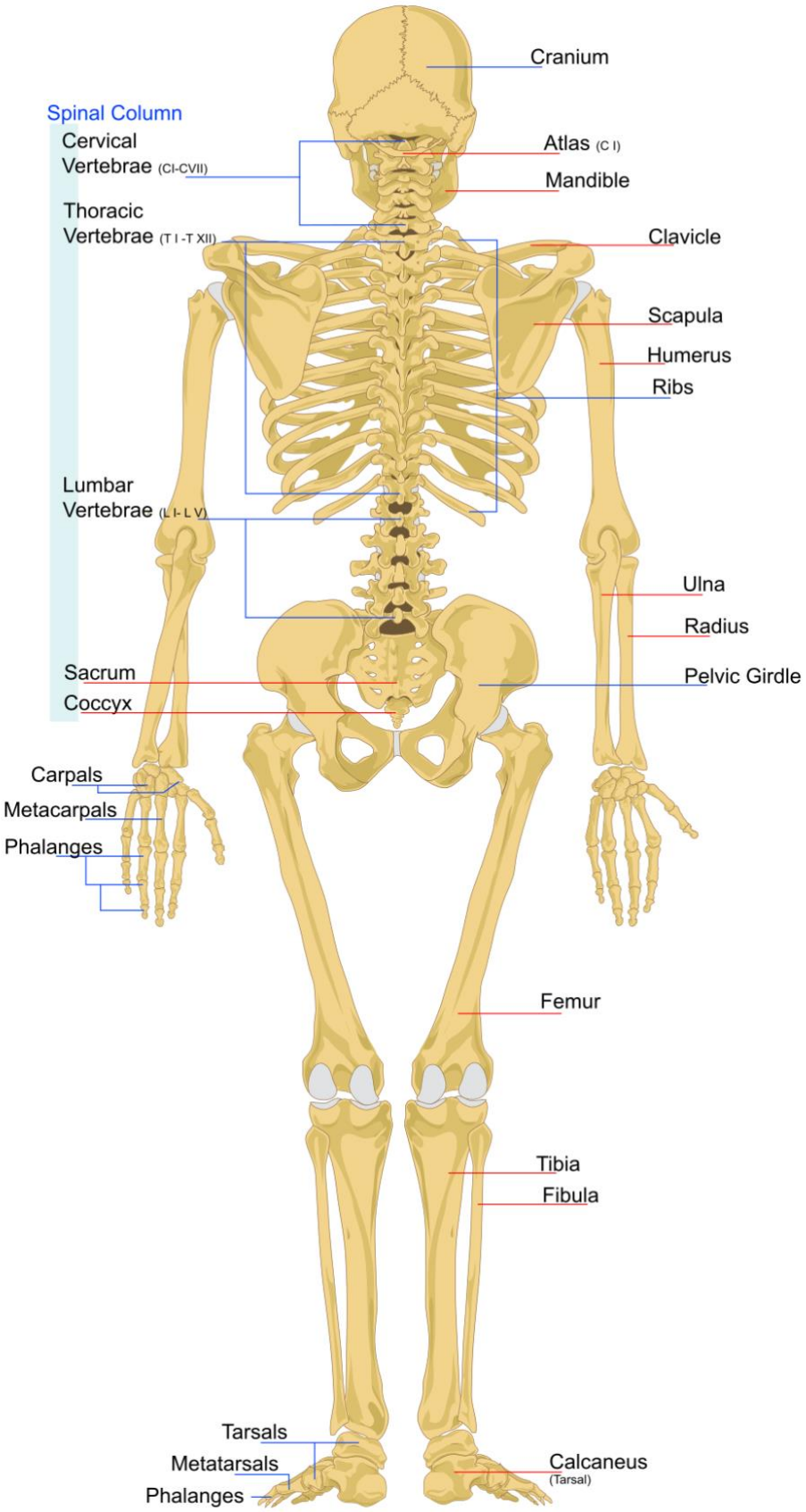
28. Why are young children's bones flexible, bones of old people brittle?

29. What causes rounded shoulders?

30. How do you ensure the framework of the body to grow strong and shapely?

31. How do you keep the cells of framework of the living temple strong and graceful?





Human Skeleton

*** Exploring the Skeletal System ***

1. What are the six functions of bone?

2. What is the anatomy of a long bone?

3. What does the matrix of bone consist of?

4. What are the different bone cells, function?

5. Describe bone formation (ossification).

6. Describe compact bone tissue.

7. Describe spongy bone tissue.

8. How do bones grow?

9. What is remodeling, needed, regulated?

10. How are bone fractures repaired?

11. Describe the bones role in calcium homeostasis.

12. What hormones are part of calcium homeostasis?

Medical-Related Terms

- Different Types of Bone Fractures
- Pulsating Electromagnetic Fields to Assist Bone Healing
- Osteoporosis
- Paget's Disease
- Rickets
- Brittle Bone Disease

Skeletal System

1. What are the four types of bones?

2. Describe the different depressions, openings, and processes found on bones, function.

3. Describe the long bones, composition, shape, function, examples.

4. Describe the short bones, composition, shape, function, examples.

5. Describe the flat bones, composition, shape, function, examples.

6. Describe the irregular bones, composition, shape, function, examples.

7. What are the two divisions of the human skeleton?

8. Describe the axial skeleton, bones, suture

9. Describe the appendicular skeleton, bones, girdles

10. Describe the bones of skull, type, arrangement, joints

11. Describe the hyoid bone

12. Describe the vertebral column and vertebra, regions, curves

13. Describe the thorax skeleton: sternum, ribs, coastal cartilage, and thoracic vertebrae, function.

14. Describe the pectoral girdle, bones, articulations

15. Describe the upper extremities, bones, articulations

16. Describe the pelvic girdle, bones, articulations

17. Describe the lower extremities, bones, articulations

18. Compare and contrast male and female skeletons

Medically-Related Terms

- Black Eye
- Sinusitis
- TMJ Syndrome
- Cleft Palate
- Deviated Nasal Septum
- Epidural Anesthesia
- Sternal Puncture
- Fractured Clavicle
- Pelvimetry
- Flatfoot
- Clawfoot
- Bunions

Articulations

1. What are the three ways joints are classified?

2. Describe the three types of immovable joints (synarthrosis)

3. Describe the two types of slightly movable joints (amphiarthrosis)

4. Describe the general structure of a freely movable joint (Diarthrosis)

5. How are the articulating surfaces of the bones of a diarthrosis kept in contact?

6. Describe and provide examples for each type of diarthrosis
    Gliding joint
    Hinge joint
    Pivot
    Ellipsoidal
    Saddle Joint
    Ball and Socket

7. What movements and special movements can occur at the Diarthrosis:

-gliding, flexion, extension, hyperextension, rotation, abduction, adduction, and circumduction

- elevation, depression, protraction, retraction, inversion, eversion, dorsiflexion, plantar flexion, supination, pronation

8. Describe the tibiofemoral joint

9. What is an accessory ligament, two types?

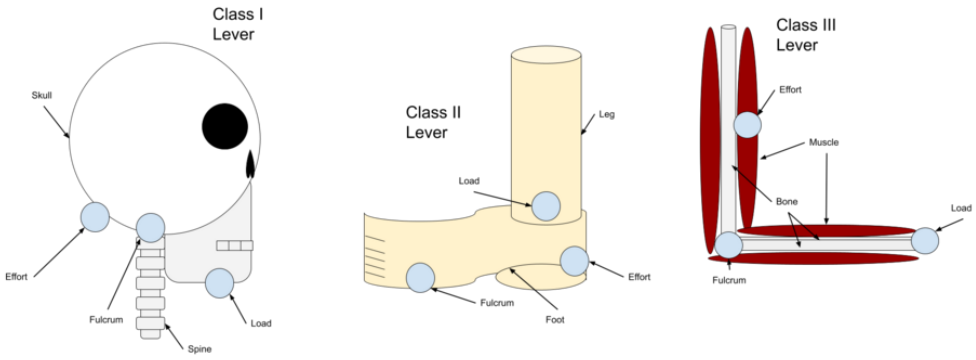
10. What is an articular disc?

11. What is synovial fluid, produce cracking sound?

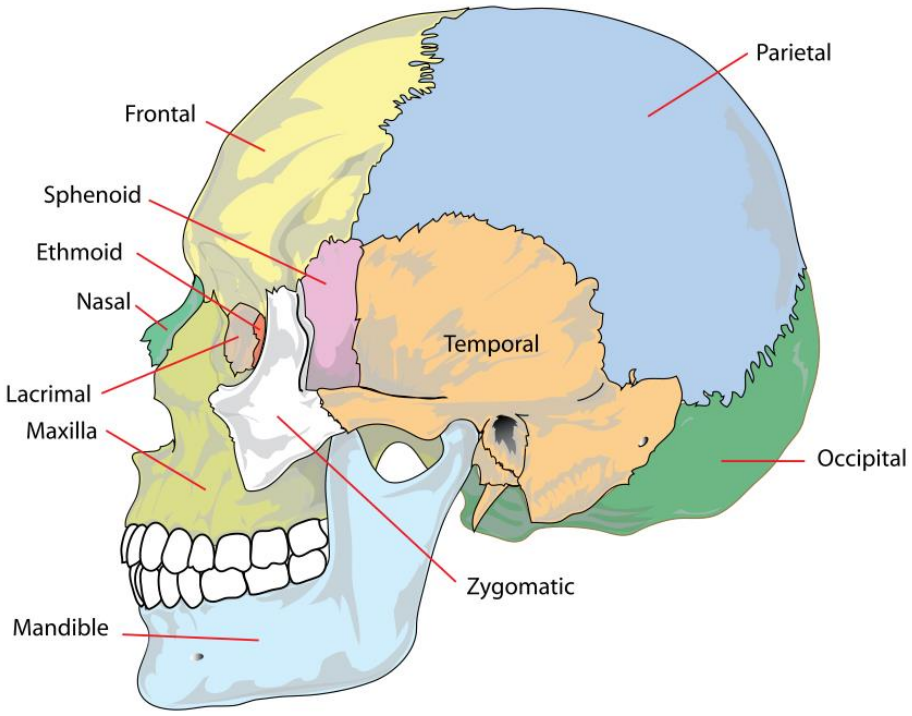
Medically-Related Terms

- Arthroscopy
- Arthroplasty
- Rheumatism
- Arthritis
- Total Hip Replacement/Knee replacement
- Osteoarthritis
- Lyme Disease
- Bursitis
- Ankylosing Spondylitis
- Dislocation
- Sprain and Strain

Three Classes of Levers



Skull Bones



This stage of the Christian Mystic's spiritual development therefore involves a reversal of the creative force from its ordinary downward course where it is wasted in generation to satisfy the passions, to an upward course through the tripartite ***spinal cord****, whose three segments are ruled by the moon, Mars, and Mercury respectively, and where the rays of Neptune then lights the regenerative spinal spirit fire. This mounting upward sets the* ***pituitary body*** *and the* ***pineal gland*** *into vibration, opening up the spiritual sight; and striking the* ***frontal sinus*** *it starts the crown of thorns throbbing with pain as the bond with the physical body is burned by the sacred Spirit Fire, which wakes this center from its age-long sleep to a throbbing, pulsating life sweeping onward to the other centers in the five-pointed stigmatic star. They are also vitalized, and the whole vehicle becomes aglow with a golden glory. Then with a final wrench the great vortex of the desire body located in the* ***liver*** *is liberated, and the martial energy contained in that vehicle propels upward the sidereal vehicle (so-called because the stigmata in the head, hands, and feet are located in the same positions relative to one another as the points in a five-pointed star), which ascends through the* ***skull*** *(Golgotha), while the crucified Christian utters his triumphant cry, "Consummatum est" (it has been accomplished), and soars into the subtler spheres to seek Jesus whose life he has imitated with such success and from whom he is thenceforth inseparable. Jesus is his Teacher and his guide to the kingdom of Christ, where all shall be united in one body to learn and to practice the Religion of the Father, to whom the kingdom will eventually revert that He may be All in All.* (**Max Heindel,** ***Ancient and Modern Initiation***)

After this, Jesus knowing that all things were now accomplished, that the scripture might be fulfilled, saith, I thirst. Now there was set a vessel full of vinegar: and they filled a spunge with vinegar, and put it upon hyssop, and put it to his mouth. When Jesus therefore had received the vinegar, he said, It is finished: and he bowed his head, and gave up the ghost. (**John 19:28-30 KJV**)

Chapter 31. The Bread of Life

And Jesus said unto them, I am the bread of life: he that cometh to me shall never hunger; and he that believeth on me shall never thirst. (**John 6:35 KJV**)

1. What is the elixir of life?

2. What is our part of the work in building the living temple?

3. What is the day work in the living temple?

4. What is the night work in the temple?

5. Why do older people need less food?

6. What does bread mean in general?

7. What is the Bread of Life?

8. What do the Psalms tell us about food?

I am the living bread which came down from heaven: if any man eat of this bread, he shall live for ever: and the bread that I will give is my flesh, which I will give for the life of the world. (**John 6:51 KJV**)

He that eateth my flesh, and drinketh my blood, dwelleth in me, and I in him. As the living Father hath sent me, and I live by the Father: so he that eateth me, even he shall live by me. This is that bread which came down from heaven: not as your fathers did eat manna, and are dead: he that eateth of this bread shall live for ever. These things said he in the synagogue, as he taught in Capernaum. Many therefore of his disciples, when they had heard this, said, This is an hard saying; who can hear it? When Jesus knew in himself that his disciples murmured at it, he said unto them, Doth this offend you? What and if ye shall see the Son of man ascend up where he was before? It is the spirit that quickeneth; the flesh profiteth nothing: the words that I speak unto you, they are spirit, and they are life. But there are some of you that believe not. For Jesus knew from the beginning who they were that believed not, and who should betray him. And he said, Therefore said I unto you, that no man can come unto me, except it were given unto him of my Father. From that time many of his disciples went back, and walked no more with him. Then said Jesus unto the twelve, Will ye also go away? Then Simon Peter answered him, Lord, to whom shall we go? thou hast the words of eternal life. And we believe and are sure that thou art that Christ, the Son of the living God. (**John 6:56-69 KJV**)

Chapter 32. Good Building Materials

And God said, Behold, I have given you every herb bearing seed, which is upon the face of all the earth, and every tree, in the which is the fruit of a tree yielding seed; to you it shall be for meat. (**Genesis 1:29 KJV**)

1. What are the two classes of foods?

2. Why do we need nitrogen?

3. In what foods do we find nitrogen?

4. What is a perfect food, contain?

5. What is a good flesh building food, contain?

6. Why can meat not be good to eat?

7. What diet is given in Genesis?

8. How much water do plants use in making food?

9. Why is meat called "*second-hand food*"?

10. What do carbonaceous foods contain, from where?

11. What is the function of sugar/fats in the body?

12. What are the most nourishing grains?

13. Why do we need to eat more in the winter?

14. How much of your body is water?

15. How much water do we need each day?

16. When is the best time to drink?

17. What foods were planned and designed as building materials for your temple?

Do not work for food that spoils, but for food that endures to eternal life, which the Son of Man will give you. For on him God the Father has placed his seal of approval." (**John 6:27 KJV**)

Chapter 33. Apples of Gold and Nuts of Silver

And their father Israel said unto them, If it must be so now, do this; take of the best fruits in the land in your vessels, and carry down the man a present, a little balm, and a little honey, spices, and myrrh, nuts, and almonds: (**Genesis 43:11 KJV**)

1. What represents the solid timbers of the living temple?

2. What represents the gold and silver in pillar, wall, and fret-work?

3. What is the progression of fruits from June to June?

4. What are fruits mostly composed of?

5. What else are fruits composed of?

6. What do the acids/sugars of fruits do in the body?

7. What is ne of the most nourishing fruits, contain?

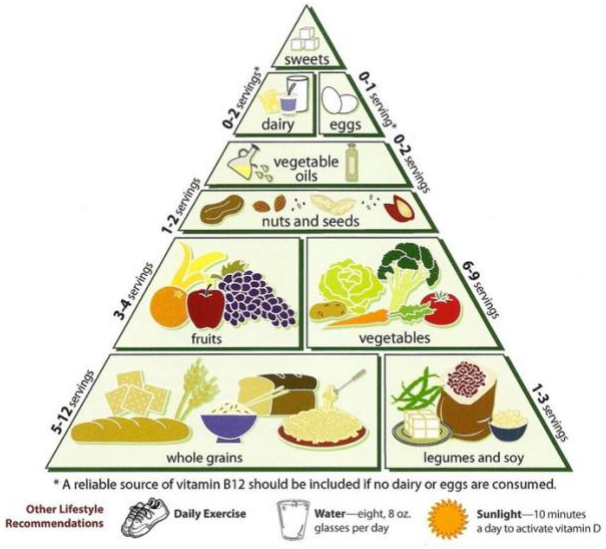
8. What is found in figs and dates, grapes, strawberries, and olives?

9. What occurs when fruit ripens?

10. What are nuts rich in?

11. What are some of the wholesome nuts?

12. Which nuts require special preparation?



Vegetarian Food Pyramid

Chapter 34. Poor Building Materials

And he also had made savoury meat, and brought it unto his father, and said unto his father, Let my father arise, and eat of his son's venison, that thy soul may bless me. (**Genesis 27:31 KJV**)

1. What is needed for the living temple to grow fair and strong and reach perfection?

2. What are good selections of foods to choose from?

3. What things spoil the good material in other foods?

4. What are some poor building materials?

5. What does it mean to be a good cook?

6. Why do we need to cook many foods?

7. What are some wholesome breads?

8. How should rice be prepared?

9. How is wheat made into a perfect food?

10. Why are potatoes a good building material?

11. How should eggs be prepared?

12. What parasite does pork contain?

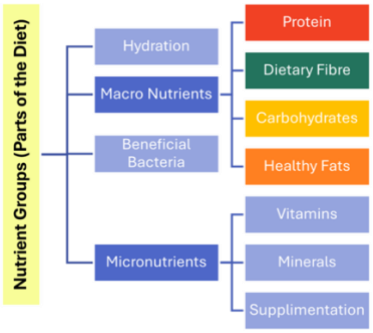
13. Why shouldn't you eat during times of being very tired or excited?

14. What interferes most seriously with digestion?

15. How should you come to the table to eat?

16. What should be done in place of eating in between meals?

17. How should the last meal of the day be?



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Chapter 35. A Terrible Enemy to the Little Workers

Then Jesus said unto them, Verily, verily, I say unto you, Moses gave you not that bread from heaven; but my Father giveth you the true bread from heaven. For the bread of God is he which cometh down from heaven, and giveth life unto the world. Then said they unto him, Lord, evermore give us this bread. And Jesus said unto them, I am the bread of life: he that cometh to me shall never hunger; and he that believeth on me shall never thirst. (**John 6:32-35 KJV**)

1. What makes bread rise, why?

2. What else does yeast produce?

3. What are examples of fermented drinks?

4. What is the process of distillation?

5. What does diastase do?

6. How is beer made?

7. What is the first record of the effect of alcohol upon man?

8. What does the Arabian word for *alcohol* mean?

9. Why was alcohol named "*aqua vita*"?

10. What does alcohol do in the body?

11. How does alcohol effect the heart?

12. What is the best way to approach the drinking of alcohol?

Treading in the Winepress

Chapter 36. Thieves and Murderers

In the midst of the street of it, and on either side of the river, was there the tree of life, which bare twelve manner of fruits, and yielded her fruit every month: and the leaves of the tree were for the healing of the nations. (**Revelation 22:2 KJV**)

1. What drink is considered a thief, why?

2. What does tea contain?

3. What is another thief?

4. Which has more caffeine, tea or coffee?

5. Why are coffee and tea "*liars*"?

6. What is a murderer, why?

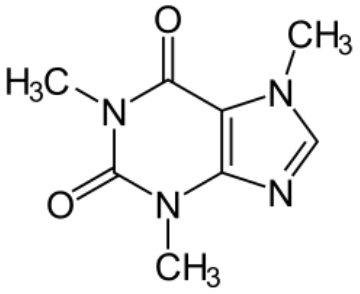
7. What happens when you keep smoking?

8. Where does opium come from, contain?

9. What is morphine used for, effect in body?

10. Why did people become addicted to opium?

11. What mothers use in the past for their crying babies?

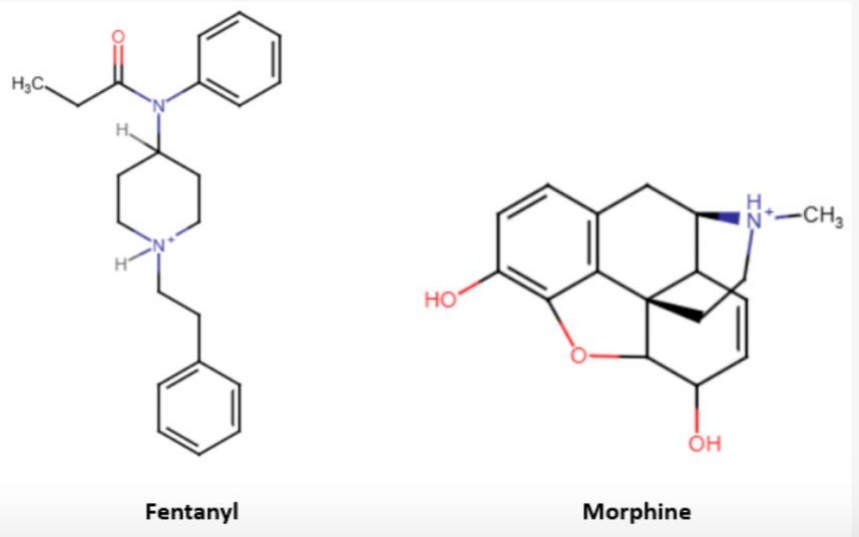


Caffeine

Medically-Related Terms

- Saponins
- GABA
- Amino Acids: L-theanine
- Catechins and Antioxidants
- Polyphenols

- Volatile Compounds
- Caffeine
- Chlorogenic Acids and Melanoidins to Deactivate Oxidants
- Diterpenes
- Acids (citric, malic, quinic acids)
- Fentanyl
- Morphine
- Nicotine
- Tar
- Carbon Monoxide
- Benzene
- Formaldehyde
- Arsenic
- Hydrogen Cyanide
- Cadmium
- 1,3-Butadiene
- Carcinogens: TSNAs and PAHs
- Colic: Probiotics and Simethicone Drops
- Teething Pain: Paracetamol and Ibuprofen



Chapter 37. The Sum of the Body

For as the body is one, and hath many members, and all the members of that one body, being many, are one body: so also is Christ. (**1 Corinthians 12:12 KJV**)

1. Breathing surface of the lungs?

2. Heartbeats in one year?

3. Saliva made in one day?

4. Number of red corpuscles in blood?

5. Surface area of skin?

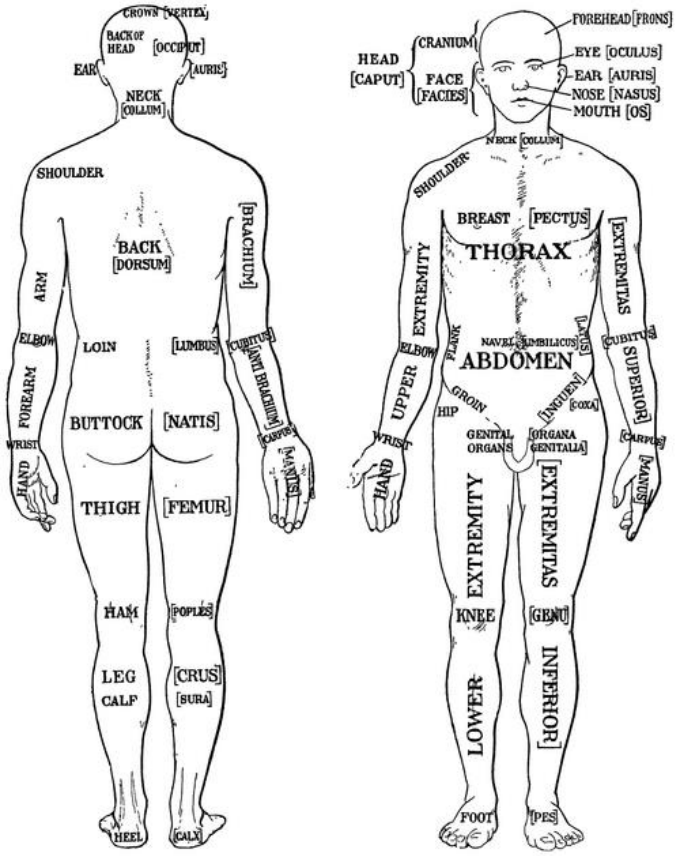
6. Number of air cells/sacs in the lungs?

7. Number of villi in the small intestines?

8. Amount of waste material/sweat given off by the skin in one day?

9. Amount of gastric juice produced in one day?

10. Amount of fluid and waste secreted by the kidneys in one day?



Chapter 38. The Beauty of the Temple

Your beauty should not come from outward adornment, such as elaborate hairstyles and the wearing of gold jewelry or fine clothes. Rather, it should be that of your inner self, the unfading beauty of a gentle and quiet spirit, which is of great worth in God's sight. (**1 Peter 3:3-4 NIV**)

1. How is there beauty in all phases of our life?

2. What should we think/not think when we see a grand old man?

3. What was not in the plan of God?

4. Where do the different workers do their work in/on the body?

5. Why does the face change over time?

6. How many muscle pairs cover the bones of the face?

7. What gives smoothness to the face?

8. What are facial nerves sensitive to?

9. Where is the *occipito-frontalis* muscle found, express, how?

10. Where is the *corrugator supercilia* muscle found, express, how?

11. What did Aristotle say about a forehead loaded with wrinkles?

12. What are the lips formed by, do?

13. How many muscles close and protrude the lips?

14. What is the "*smiling muscle*", how does it work, produce?

15. What do other muscles in the face express?

16. Which muscle are least under the control of our will in the face?

17. What does the face show to others?

18. What was said about the face of Jesus, why?

19. What does the word "*healthy*" mean?

20. Why could disease not approach Jesus?

21. How can we learn to build better?

*** Glands Related to Spiritual Work ***

"*In the future the **ductless glands** are destined to play a prominent role; their development will accelerate evolution greatly, for their effects are mainly mental and spiritual. We are now nearing the Aquarian Age; the Sun is therefore beginning to transmit the highly intellectual vibrations of this sign which accounts for the intuitions, premonitions, and telepathic transmission now so prevalent. In the final analysis these phenomena are due to the awakening of the **pituitary body**, ruled by Uranus, the lord of Aquarius, and every passing year will make them more manifest*."
(**Max Heindel, *Occult Principals of Health and Healing***)

*Science is gradually learning the truths previously taught by esoteric science and their attention is being more and more directed to the ductless glands which will give them the solution of many mysteries. However, they do not seem to be aware as yet that there is a physical connection between the **pituitary**, the principal organ or assimilation, and therefore of growth, and the **adrenals**, which eliminate the waste and assimilate the proteins. These are also physically connected both with the **spleen** and the **thymus** and **thyroid glands**. It is significant in this connection from the astrological point of view, that the **pituitary body** is ruled by Uranus, which is the higher octave of Venus, the ruler of the **solar plexus** where the seed atom of the vital body is located. Thus, Venus keeps the gate of the vital fluid coming direct from the Sun through the **spleen**, and Uranus is warder of the gate where enters the physical food. It is the blending of these two streams which produces the latent power stored up in our vital body until converted to dynamic energy by the martial desire nature*.
(**Max Heindel, *Rosicrucian Philosophy in Questions and Answers***)

*They have a great and particular interest for esotericists, and they may be termed in a certain sense "the seven roses" upon the Cross of the body, for they are intimately connected with the esoteric development of humanity. Four of them, the **thymus gland,** the **spleen**, and the two **adrenals** are connected with the personality. The **pituitary body** and the **pineal gland** are particularly correlated with the spiritual side of our nature and the thyroid gland forms the link between. The astrological rulership is as follows:*

*The **spleen** is the entrance gate of the solar forces specialized by each human being and circulated through the body as the vital fluid, without which no being can live. This organ is therefore governed by the Sun. The two **adrenals** are under the rulership of Jupiter, the great benefic, and exert a calming, quieting and soothing effect when the emotional activities of the Moon and Mars or Saturn have destroyed the poise. When the obstructive hand of Saturn has awakened the melancholy emotions and laid its restraint upon the heart, the **adrenals'** secretions are carried by the blood to the heart and act as a powerful stimulant in its effort to keep up the circulation, while the jovial optimism struggles against the saturnine worries or against the impulse of Mars, which stirs the desire body into turbulent emotions of anger, rendering the muscles tense and trembling,*

*dissipating the energy of the system. Then the secretion of the **adrenals** comes to the rescue, releasing the glycogen of the **liver** in a more abundant measure than usual to cope with the emergency until the equipoise has been again attained, and similarly during whatever other stress or strain. It was the knowledge of this esoteric fact that prompted the ancient astrologers to place the kidneys under the rulership of Libra, the Balance, and in order to avoid confusion of ideas we may say that the **kidneys** themselves play an important part in the nutrition of the body, being under the rulership of Venus, the Lady of Libra. However, Jupiter governs the **adrenals**, with which we are now particularly engaged*.
(**Max Heindel, *The Message of the Stars***)

Pituitary Gland (Hypophysis)

*The divine power of organs which have served him as spiritual media in the far past, are reawakened to new activity. This is particularly the case with the **pituitary body** and **pineal gland**. When he has learned to vibrate these little organs, he has developed a new sense which we may call spiritual vision, for then he sees the Invisible World and the occupants thereof. There are other steps by which he may, after awhile, become a full-fledged citizen of these realms while still living in the physical body, which he can them leave or reenter at will. With this phase of the subject we are not at the present time concerned. Be it noted, however, that only a Spirit can set these little organs in vibration, or reawaken their latent activities*.
(**Max Heindel, *Rosicrucian Philosophy in Questions and Answers***)

1. Connection to Hypothalamus

2. Structure, location, and size

3. Anterior and Posterior Lobes

4. Pars intermedia

5. Five types of anterior pituitary cells and the seven major hormones produced, effect and regulation of each
    - Human Growth Hormone (hGH)
    - Thyroid Stimulating Hormone
    - Follicle Stimulating Hormone
    - Luteinizing Hormone
    - Prolactin
    - Melanocyte-Stimulating Hormone
    - Adrenocorticotropic Hormone

6. Posterior Pituitary Gland, structure and function
    - Oxytocin
    - Antidiuretic Hormone

A Student, *The Mystery of the Ductless Glands* (Ch. 6 Abridged):
THE PITUITARY BODY

The pituitary body or hypophysis is a lump of tissue about the size of a pea, situated almost exactly in the center of the head at the base of the brain and just behind the root of the nose. it hangs SUSPENDED from the underside of the brain like a cherry from the limb of a tree. It is a grayish- yellow color. It increases in size until about the thirtieth year, and in the adult weighs about five grains, or 1/1400 of a pound. During pregnancy the gland increases somewhat in size. It lies in a saddle-like depression in the sphenoid bone called the SELLA TURCICA and is enclosed in a strong membranous tissue called DURA MATER.

The pituitary body is composed of two seemingly independent organs, distinct in their origin, history, function, and secretion. The outgrowth of the mouth cavity forms the anterior lobe of the pituitary, and the infundibulum part represents an outgrowth of the oldest part of the nervous system, the involuntary or sympathetic system, and develops into the posterior or post-pituitary lobe of the gland.

After a time, it was found that it had two distinct parts and that each produced hormones distinctly different from the other. It was further discovered that what at first was considered to be one hormone was found to consist of two or more separate ones, until at present it is believed that the pituitary produces at present it is believed that the pituitary produces no less than eight distinctly different hormones.

The anterior lobe of the pituitary, called the pre-pituitary, is composed of a collection of solid columns of cells surrounded by blood spaces into which the cell secretion is undoubtedly directly poured. The posterior lobe consists of secretory cells producing a glossy substance which finds its way into the spinal fluid that bathes the nervous system.

There is one chemical in the secretion of the pre-pituitary that stimulates the growth of tissue, particularly the bony tissue, and another which influences the sex organs and sexual activity. One of the extracts of the prepituitary has a definite effect on the reddish-yellow mass which fills the egg sacs in the ovaries, stimulating them to excessive growth

In the light of the foregoing, it is evident that the prepituitary is not only one of the chief controllers of growth but is the controller of the mysterious process in human development called puberty.

The internal secretions of the pituitary undoubtedly have an effect on the energy production, especially the energy of the central nervous system, the gray matter of the brain, and the spinal cord. An overproduction of energy in the body may be due to an excessive amount of the internal secretion of the pituitary circulating in the blood and tissues.

To summarize: The anterior or prepituitary produces a secretion that promotes the growth of the skeleton and connective tissues, causes the normal development of the creative organs and sex activity, and stimulates the well- being and action

of the thyroid and adrenal glands. The secretion of the anterior pituitary, called prolactin, is essential to the production of milk in female animals.

The posterior lobe of the pituitary body secretes several important hormones, two of which are in frequent use. One of them, called pitocin, has a powerful stimulating effect on the pregnant uterus and is frequently used in cases where labor is slow and ineffective. The other hormone is called pituitrin. In general, this secretion controls the tone of the tissues of the involuntary or smooth muscle fibers of the blood vessels, and the contractile organs of the body like the intestines, the bladder, and uterus. Normally, there is a certain fixed ratio of salts in the blood which keeps them (the salts) like the ratio of sea water. it has recently been proved that the blood pressure rising effect is due to one internal secretion of the postpituitary, and the contracting propensity is due to another constituent in the secretion.

There are singular by-effects of the pituitary in relation to the periodic phenomena of the physical organism, like hibernating, sleep, and wakefulness. An active pituitary produces sleepiness and general dullness. In hibernation or winter sleep, the animal in cold weather passes into a cataleptic state in which it continues to breathe, more deeply but more slowly than when awake, but shows no other signs of conscious life. A lowered blood pressure and a marked insensibility to painful and emotional stimuli go with it. There is a preliminary storage of starch in the liver and fat throughout the starch depots of the body.

The internal secretions of the glands of the hibernating animals show changes in all of them during the period of hibernating but most marked change is in the pituitary whose cells shrink as if they too were asleep or resting. These animals come to at the vernal equinox (spring) and the pituitary gland cells again become normally active. Some scientists claim that hibernation may be attributed to a seasonal wave of pituitary inactivity

All grades of overaction of the pituitary exist. This overaction has the peculiar power to act as a stimulant to the growth of the bones and the soft supporting, connecting tissues, like tendons and ligaments.

If the excess of the pituitary secretions begins before puberty, it causes great elongation of the bones, resulting in giantism. Normal giants, persons exceptional in size and free from physical or mental deformities, are rare. There are, however, people with hyper-prepituitarism, who are possessed of the highest mental powers. In such individuals there is an increased activity of the posterior lobe in association with enlargement and hyperfunction of the anterior lobe. Their overgrowth is not so marked, and they are lean and mentally acute.

If the overaction of the pituitary happens after puberty when the long bones have set and cannot grow longer, a peculiar, widely spread enlargement of the individual's face and body occurs, especially of his hands, feet, and head. The nose, ears, lips, and eyes get larger and coarser. As these people are rather big and tall to begin with, the effect produced is that of a heavy- jawed, burly, bulky person, with bushy overhanging eyebrows and an aggressive appearance. Such people often suffer from torturing, boring headaches, a consequent despondency, and a feeling of hopelessness which colors their attitude toward life. Up to a certain point they have a remarkable alertness and are very capable.

Oversecretion or undersecretion of the anterior gland may interfere with the proper functioning of the posterior gland, the secretion of which is a tonic to both the brain and the sex cells. In cases where the bony container is, or becomes, too small for the pituitary, along with undersize, obesity, et cetera, there develops conspicuous moral and intellectual inferiority. The person suffers from lack of self-restraint and an impelling desire to act according to whatever idea enters his mind, be it good or bad. Such people have little or no initiative and are instinctively immoral.

The secretions of the pituitary act on the framework of the body-bones, ligaments, muscles, and tendons. Its secretions diffuse directly into the fluid bathing the nervous system, supplying beneficent stimulants, and aiding in the abstraction of harmful wastes. The pituitary secretion stimulates the brain cells directly, naturally, and normally in something like the way caffeine or cocaine stimulates them artificially.

The pituitary assists in energy transformation expenditure and conversion, particularly of the brain and sexual system. It works directly with the creative force both in the brain and reproductive organs, making it easy for them to consume energy.

The prepituitary: (1) stimulates growth of skeleton and supporting tissues; (2) influences reproductive organs and their activity; (3) stimulates excessive growth of contents of egg sacs in ovaries; (4) produces puberty; (5) injury to it causes retardation of growth in young.

The postpituitary: (1) secretes pituitrin, which controls tone (vigor) of flat smooth muscles fibers of bladder and uterus; (2) raises blood pressure; (3) increases flow of urine, and milk in breast; (4) tonic to both brain cells and sex cells; (5) increases heart contractions but decreases force of systole.

PITUITARY TYPES OF PERSONALITY

The pituitary body is a feminine-masculine gland. The feminine pituitary type is dominated by the post-pituitary lobe of the gland. The masculine type is dominated by the anterior lobe of the pituitary. The feminine pituitary type expresses tender emotions and refined sentiments. The skin is soft, moist, roseate, or creamy, hairless, and flushes easily; the brow are high, the eyes are large and prominent. These people are fond of children, and are in every way most womanly. They are of medium height, well-formed, medium- sized hands and feet, well-modulated voice, fond of good poetry and music, and have a sensitive face; are much interested in the welfare of mankind. They are womanly with a suggestion of masculine force. Mary, the mother of Jesus, is a good example of well-balanced feminine pituitary type. Florence Nightingale also belongs to this class.

An over predominant postpituitary in a woman produces one who craves excitement, constant change, and has a desire for some kind of new pleasure every minute. These women are excitement-mad and thrill-crazy.

The masculine pituitary type has superlative brain tone and action, a good all-around mental growth, and the ability to govern. Generally, this type is tall, about sex feet, the ideal virile type, with a well-developed strong frame, firm muscles, and hands and feet proportionately sized. The head is long from front to back, the face sharp and clear-cut, the eyebrows thick, the eyes prominent and wide apart, and nose broadish and long, the lower jaw prominent and firm, cheek bones prominent. These people have a high brain power, great ability to learn, and the power to control. They are masters of their lower instincts, ruling themselves and their environment. To this group belong the brain men, practical and theoretical, the philosophers and creators of new thought. Men like Abraham Lincoln, Julius Caesar, and George Bernard Shaw belong to this class.

When a predominance of the post-pituitary occurs in men it produces a type that is short, rounded, and stout, the head appearing too large for the body, with the general distribution of the hair on the extremities and trunk poor, but that of the scalp and face plentiful, and early in life they acquire an abdominal pouch. They exhibit feminine tendencies, and often poetry and music have an almost morbid appeal to them. In fact, a large number of poets and musicians are classified as feminine pituitary types. They are ofttimes beautiful characters, but usually lack self-assertion. They are often the henpecked husbands who should be understood--not bullied.

The anterior pituitary dominating in woman produces a masculine type and counteracts her natural feminine trend. It inclines her to be large, spare, and bony; gives her a protruding jaw, broad teeth, thick skin, a hairy body, and large hands and feet. However, it does give her a brilliant intellect which ofttimes creates despair in the minds of her masculine associates. Such women become the aggressive type, and fill men's places in the business world. These women also need understanding and not ridicule and sarcasm which is usually directed toward them.

Pineal Gland (Epiphysis Cerebri)

*From the back of his head there projected an organ which has now drawn into the head and is called by anatomists the **pineal gland**, or the third eye, although it was never an eye, but a localized organ of feeling. The body was then devoid of feeling, but when man came too close to a volcanic crater, the heat was registered by this organ to warn him away before his body was destroyed. ...The seat of the Human Spirit is primarily in the **pineal gland** and secondarily in the brain and the cerebrospinal nervous system, which controls the voluntary muscles*.
(**Max Heindel, Rosicrucian Cosmo-Conception**)

1. Location, size covering

2. Neuroglia

3. Pinealocytes (secretory cells)

4. Hormone: Melatonin and the Diurnal Dark-Light Cycle

5. Animal Reproduction

6. Seasonal Affective Disorder and Jet Lag

7. Physiological Role is yet still unclear

A Student, *The Mystery of the Ductless Glands* (Ch. 7 Abridged): THE PINEAL GLAND

The pineal gland is most astonishing in its nature. As its name implies, it is a cone-shaped body (Conarium pinealis, pine cone). It is reddish in color, about a half inch in length, and not much larger than a grain of wheat. It is attached to the roof of the third ventricle of the brain. It weighs about two grains. It is hidden away at the base of the brain (to which it is attached by the hollow pineal stalk) in a tiny cave behind and above the pituitary body. it is composed, in part, of nerve cells containing a pigment similar to that present in the cells of the retina which is an expression of the optic nerve-- this strengthening the argument for its ancient function as an eye. The lower part of the gland points backward.

The secretion of the pineal gland, called pinealin, acts as a restrictor for all the glands of internal secretion. By its checking activity on the other endocrine glands, it gives the baby time to grow in bulk, which is its chief business during the first two years of its existence. during these two years the baby should quadruple its birth weight. The pineal acts as a sort of general supervisor over all of the other glands.

The accepted belief of the nineteenth century anatomists was that the pineal gland was a useless, wasteful, space-consuming vestige of a once important structure. For a long time, in fact, up to a few decades ago, the pineal was believed to have no present function at all, or at least no ascertainable one. That it might be a gland of internal secretion was a popularly despised theory. Late observations, however, have related the pineal to muscle function.

It has further been discovered that the pineal regulates the coloring of the skin by varying the degree of light ray reaction. That is, it controls the action of light on the pigment of the skin. It is the light within that reflects the light without.

The pineal also produces the normal physical and mental development of the brain cells and the normal development of the cells of the organs of reproduction. The rich blood supply of the pineal is suggestive of its active functioning rather than that it is only the persistence of a vestigial organ which during the course of evolution has outgrown its original use.

To summarize: The pineal gland secretion (1) prevents a too early sex development in the child, and thereby promotes normal puberty; (2) it favors activity of the creative force, which tends to develop both the brain and the organs of reproduction normally; (3) it gives the vigor which tones up the muscles; (4) it influences the body by varying the degree of light ray reaction; that is, it controls

the susceptibility of the body to light; (5) it influences the skin pigment by causing a marked transparency of it due to a contraction of the pigment cells.

THE PINEAL TYPE OF PERSONALITY

Generally speaking, the pineal gland is masculine but there are some women who come under its domination, as we shall see when we take up the study of the spiritual activities of this organ.

The typical spiritual pineal type is tall and has a well-built figure. The shoulders are square, and the body gradually tapers to the feet. The forehead is high and broad. The eyebrows are inclined to be straight, not too heavy, and are well shaped. The large, expressive, wide-open eyes are usually a deep blue, which, regardless of color, emit a glint of divine fire. The nose is quite Grecian in shape. The lips are medium full with a slight curve. The chin is well formed and prominent enough to show real strength of character, yet it is in excellent alignment with the other features. The neck is medium-sized, set on broad, shapely shoulders. The hair, usually light brown, is abundant and has a glossy sheen. As a whole, the figure is manly with a suggestion of feminine charm.

The artist Raphael was a perfect example of the spiritually developed pineal type. It is said that his manly beauty, touched with an almost imperceptible feminine allure, was so perfect that when he passed unobtrusively along the street all who saw him stopped and gazed after him in astonished admiration. In person he was as beautiful as an angel. His disposition was sweet, kind, and gentle; in manner and conversation he was most charming, and he was celebrated for the nobility and generosity of his nature.

This marvelous picture [*Tranfiguration* by Raphael], the beauty of which must be FELT as well as seen, was Raphael's swan-song on canvas. He painted it while

he was dying. When looking at this marvelous production, one wonders if he did not paint that beautiful, holy, compassionate face of the Christ just as he saw Him in the ethers, waiting to carry into paradise the spirit of the noble man who had done so much for the glory of Christianity both by the unsurpassed holy pictures that he painted on canvas and the noble unselfish life he led.

"*The **pituitary body** and the **pineal gland** belong to still another class of organs, which at the present time are neither evolving nor degenerating, but are dormant. In the far past, when man was in touch with the "inner" Worlds, these organs were his means of ingress thereto, and they will again serve that purpose at a later stage. They were connected with the involuntary or **sympathetic nervous system**. Man then saw the inner Worlds ... [Yet, even now] the connection of the **pineal gland** and the **pituitary body** with the cerebro-spinal **nervous system** has been slowly building, and is now all but complete. ...*

*To regain contact with the inner Worlds, all that remains to be done is the reawakening of the **pituitary body** and the **pineal gland**. When that is accomplished, man will again possess the faculty of perception in the higher worlds, but on a grander scale than formerly, because it will be in connection with the voluntary **nervous system** and therefore under the control of his Will. Through this inner perceptive facility all avenues of knowledge will be opened to him and he will have at his service a means of acquiring information compared with which all other methods of investigation are but child's play.*

The awakening of these organs is accomplished by Esoteric Training"
(**Max Heindel, The Rosicrucian Cosmo-Conception**)

Adrenal (Suprarenal) Glands

"*The two **Adrenals** are under the rulership of Jupiter, the great benefic, and exert a calming, quieting and soothing effect when the emotional activities of the Moon and Mars or Saturn have destroyed the poise. When the obstructive hand of Saturn has awakened the melancholy emotions and laid its restraint upon the heart, the **Adrenals'** secretions are carried by the blood to the heart and act as a powerful stimulant in its effort to keep up the circulation, while the Jovial optimism struggles against the Saturnine worries or against the impulse of Mars, which stirs the desire body into turbulent emotions of anger, rendering the muscles tense and trembling, dissipating the energy of the system; then the secretion of the **Adrenals** comes to the rescue, releasing the glycogen of the liver in a more abundant measure than usual to cope with the emergency until the equipoise has been again attained, and similarly during whatever other stress or strain. It was the knowledge of this esoteric fact that prompted the ancient astrologers to place the **kidneys** under the rulership of Libra, the Balance, and in order to avoid confusion of ideas we may say the **kidneys** themselves play an important part in the nutrition of the body, being under the rulership of Venus, the*

*Lady of Libra, but Jupiter governs the **Adrenals**, with which we are now particularly engaged*." (**Max Heindel, *Message of the Stars***)

1. Structure, location, and size.

2. Two Regions: Adrenal Cortex and Adrenal Medulla

3. Adrenal Cortex: Three zones, arrangement and hormones

4. Mineralocorticoids: function, control, disorders (Aldosteronism)

5. Glucocorticoids: function, control, disorders (Addison's Disease, Cushing's Syndrome)

6. Gonadocorticoids: function, control, disorders (Congenital Adrenal Hyperplasia, Adrenal Tumors, Virilism, Gynecomastia)

7. Adrenal Medulla: Chromaffin cells

8. Epinephrine and Norepinephrine: function, control, disorders (Prolonged fight-or-flight response, Pheochromocytomas)

A Student, *The Mystery of the Ductless Glands* (Ch. 1 Abridged): THE ADRENALS

They are a pair of cocked-hat shaped glands capping the upper end of the kidneys. They are easily recognized because of their yellowish fatty color. The great value of these glands is better understood when it is known that death occurs very quickly after their removal.

Each adrenal is a double gland composed of a cortex or outer layer and a medulla or inner layer. The cortex is of the same kind of tissue that builds the male and female organs of reproduction. How closely the adrenals and the organs of reproduction are related is neatly pointed out by the fact of their common ancestor, the mesoderm, which forms the middle layer of the embryonic cell. The size of the adrenals is somewhat variable, but generally speaking they are about three inches long, an inch and a half wide, and weigh about a fourth of an ounce. Human beings have a larger adrenal cortex (outer layer) than any of the animals.

The adrenal cortex contains more of the phosphorous-bearing substances of the general nature of those found in the cerebrospinal nervous system than any other gland or non-nerve tissue in the physical body. During intra-uterine life the adrenals are large and conspicuous, in the first half of the second month being twice as large as the kidneys.

The secretion of the cortex or outer layer of the adrenals is called interrenalin. This secretion stimulates a healthy growth of the brain and sex cells, develops great mental concentration and physical endurance, and generates a vigorous nervous and muscular constitution. It acts on the pigment cells of the skin, blunting their sensitiveness to light. In certain diseases of the cortex of the adrenals the skin becomes dark, pigmented, or bronzed. This condition is known as Addison's disease. Interrenalin neutralizes the acid formed in the body during digestion. Were this acid not neutralized it would quickly snuff out the life of the tissues.

The adrenal cortex has an intimate relationship with the gray matter of the brain, and it also has a relation to sex and the chemical content of the blood. A defective adrenal cortex means an insufficiently developed brain and nervous system. So closely are the brain and adrenal cortex related that a normal human brain never develops without a normal adrenal cortex. Note that the adrenal cortex is also correlated to the voluntary nervous system.

The medulla, or inner portion of the adrenal glands, contains numerous nerve cells belonging to the sympathetic or involuntary nervous system. The secretion of the medulla is a nitrogenous substance called adrenalin. This secretion acts as a powerful stimulant on the heart, and has a reinforcing effect upon the entire body.

The amount of adrenalin present in the medulla in the blood issuing from the adrenals, and in the circulation in general is about one part to twenty million while there is about a hundred thousand times as much stored in the glands as reserve. Profound emotions result in a decrease of it in the glands and an increase in the blood. Pain and excitement, especially fear and rage, cause a discharge from the glands. The entry of adrenalin into the blood causes a tremendous heightening of vigor, and a tensing of the nervous system. The nerve cells become more sensitive to stimuli, more sugar is sent into the blood from the liver, and more red blood corpuscles are forced into the circulation from the blood lakes of the liver and spleen. A redistribution of the entire blood mass takes place, a great deal of it being withdrawn from the internal viscera and dispatched to the brain and to the muscles attached to the skeleton. The heart beats more strongly, the eyes are enabled to see more clearly, the hearing becomes intensified, and the breathing more rapid; the temperature rises, and the skin gets moist and greasy. In case of fear the hair of the head and body often becomes erect.

This extra adrenalin in the blood produces a reinforcing action on the nutritive properties of the blood, the tone of the muscles, and the activity of the brain and sympathetic nervous system.

While the adrenals are thus stimulating the external muscles, they are having the opposite effect on the digestive organs; for the time being digestion is inhibited, for the Ego's whole attention is being centered entirely along another line of action, and everything nonessential or detrimental to the matter of the moment is inhibited, arrested, and suppressed.

In facing a crisis, the adrenals function as the glands of combat. The more combative and pugnacious the animal or individual, the more adrenal activity it or he has. The adrenals are the glands of energy, the glands of emergency, and the glands of preparedness. Adrenalin, the secretion of the medulla, is the substance

used for body mobilization at a moment's notice. It has a reinforcing action on the entire physical organization, adding strength, alertness, and both physical and mental activity. It gives force in combat and swiftness in flight.

Adrenalin is so powerful in its action that in solution of one part to a million, it produces physiological reaction. its effect on the small blood vessels is so tremendous that quite a weak solution will stop a hemorrhage when applied locally, and it is frequently used in minor surgical operations to prevent excessive bleeding; but owing to the fact that its effect lasts only a few minutes, the injections have to be repeated frequently. As the activity of adrenalin is regulated by the sympathetic or involuntary nervous system the secretion of it can be increased by the stimulation of these nerves along the spinal column.

Through repeated excitement, anger, rage, et cetera, the adrenal glands may be exhausted of their reserve supply of adrenal secretion; the amount secreted being insufficient if enough time is not allowed, between demands, for the glands to recuperate, the result being temporary or chronic adrenal deficiency. In a person so affected there appears a weariness, a sensitiveness to cold, cold hands and feet which are sometimes mottled bluish-red; a loss of appetite and zest of life, and a tendency to worry; also, an inclination to weep on the slightest provocation.

A nervous breakdown may sometimes be traced to a lack of normal response to the needs of everyday life by the adrenals. In some cases, mental and physical elasticity is totally lost, and even the slightest exertion along either line often causes so much worry and exhaustion as to be prohibitive. Sometimes such sufferers are obsessed by the thought that they have lost their nerve completely, and accordingly dread to commit themselves on even the most trivial subject. This vacillating frame of mind is so distressing that at times it arouses thoughts of suicide.

If the process involving the adrenal cortex attacks it after birth, the symmetrical correspondence and harmony of the primary sex organs and the secondary sex characteristics are not affected, but there follows a curious hastening of the maturity of the body and mind--a precocious puberty, with the most startling effects. A little girl two, three, or four years of age will within a few months after the appearance of the disease begin to exhibit the growth and likeness of a girl of fourteen or fifteen, developing the physical and mental qualities and attributes of an adolescent--a tot bewitched into puberty, so to speak. Again, a boy of six or seven years may suddenly in the course of a few weeks or months become a little man, robust, rather short and stocky, but mustached, with the muscular strength and sexual powers of a man and thinking a man's thoughts.
(**The Mystery of Ductless Glands**)

Thyroid

"*That the **Thyroid Gland** is under the rule of Mercury, the planet of reason, is readily realized when we understand the effect which the degeneration of this gland has upon the mind, as shown in the diseases of Cretinism and Myxedema.*

*The secretions of this gland are as necessary to the proper functioning of the mind as ether is to the transmission of electricity, that is to say, upon the physical plane of existence where the brain transmutes thought into action. ... When they are awakened to normal activities these two ductless glands [Pituitary and Pineal Glands] will open the door to the inner worlds in a sane and safe manner, but in the meantime the **Thyroid Gland**, ruled by Mercury, the planet of reason, holds the secretion necessary to give the brain balance*."
(**Max Heindel, Message of the Stars**)

1. Structure, location, and size

2. Isthmus

3. Thyroid follicles: Follicular cells activated produce thyroxine (T4) and triiodothyronine (T3) – Thyroid Hormones

4. Parafollicular cells or C (clear) cells produce calcitonin for calcium homeostasis

5. Stores 100-day supply of its hormones (T3, T4)

6. Thyroid hormones attach iodine to tyrosine (amino acid)

7. Thyroid Stimulating Hormone (TSH): Steps to secretion of thyroid hormones

8. Actions of the Thyroid Hormones

9. Control of Thyroid Hormone Secretion

10. Disorders: Cretinism, Myxedema, Grave's Disease, and Goiter

11. Calcitonin: Actions, Control of Secretion

A Student, *The Mystery of the Ductless Glands* (Ch. 5 Abridged): THE THYROID GLAND

THE GLAND OF ENERGY

The thyroid gland consists of two maroon-colored masses astride the upper end of the windpipe, close to the larynx. These are connected just below the Adam's apple by a narrow isthmus of the same tissue. This gland arises from the same tissue and almost from the same spot as the anterior lobe of the pituitary body. it weighs about an ounce. Each lobe of the thyroid is about two inches in length, and from an inch to an inch and a quarter in thickness. The thyroid is almost the first organ to become distinct in the human embryo.

The importance of the thyroid is plainly indicated by the richness of its circulation. This gland receives about four times as much blood in proportion to its size as do the kidneys, which are noted for their high degree of functional

activity. It is heavier in the female than in the male, and becomes enlarged during sex excitement, menstruation, and pregnancy.

Max Heindel states: "During the early part of the Hyperborean Epoch, while the Earth was still united with the Sun, the solar forces supplied man with all the sustenance he needed and he unconsciously radiated the surplus for the purpose of propagation.

"As a result of this change only one part of the force essential in the creation of another being was available to one individual, hence it became necessary for each individual to seek the cooperation of another, who possessed that part of the procreative force which the seeker lacked.

"Thus did the evolving entity obtain brain consciousness of the outside world at the cost of half its creative power. Previous to that time, it used within itself both parts of that power to externalize another being. As a result of that modification, however, it has evolved the power to create and express thought. Before then, it was a creator in the physical world only; since then, it has become able to create in the three worlds."

It is believed by prominent biologists that the thyroid has played a prominent part in the change of sea creatures into land animals.

Both the thyroid gland and its secretion are used as medicine. The secretion of the gland is called thyroxin. It is a gelatinous substance containing a large per cent of iodine, also arsenic and phosphorous. Thyroxin depends on iodine for its activity.

The thyroid is an energy gland, and its secretion is the controller of the speed of living. The less one has of this secretion the more slowly he lives; that is to say, the rate at which the chemical reactions go on that constitute the process of life, is dependent on the thyroid. When the reactions are speeded up more oxygen and food materials are oxidized, thereby liberating more energy, and the individual can think, feel, see, and act more readily. The thyroid seems to mix more oxygen with the cell food and at the same time frees energy to be used for heat and motion and other needs.

Not only is the degree of pressure energy in the cells of the body controlled by the thyroid, but the mobility of that energy is also controlled by it. Without thyroid secretion the output of large and rapid fluctuations of energy, and the elasticity and flexibility of energy mobilization for any sudden muscular act, let alone an emergency, would be quite impossible.

The thyroid is the most important gland in the body for the reason that it controls the growth of the dense vehicle, also mental development, and it is very closely related to all of the other six glands under consideration. It is the great link between the brain and the organs of generation, and manufactures the secretion necessary to give the brain balance.

Two of the principal disease connected with the thyroid gland are cretinism and myxedema. Both of these are cause by an imperfect connection between the brain centers and the vital body, which prevents the thyroid gland from secreting the

thyroxin that would connect the thyroid with the brain and generative organs. Cretinism is infant idiocy. The same disease in the adult is called myxedema.

To find the cause of the affliction one must look to the organs affected-- the brain and generative organs. The creative, growth-producing force is practically shut off from them.

The abuse of the creative force for the gratification of the senses is the sin against the Holy Spirit that is not forgiven, but must be expiated by living in vehicles the efficiency of which is impaired--a terrible lesson, and one that is never given to a Spirit to learn unless it has been found that it can get it in no other way.

Scientists all unknowingly are trying to outwit the working out of this great Law of Cause and Effect through rebirth by robbing the helpless animal kingdom of its thyroxin and feeding it to diseased man. But God is not mocked: Whatsoever a man soweth, that shall he also reap--and the feeding of animal thyroxin to a cretin or myxedemist will never effect a real cure. it only puts off the payment of the karmic debt until another time. It is only when we overcome a bad habit through our own will power that we have mastered it.

Not only may there be an insufficiency of thyroid secretion in the blood and tissues but there are instances where individuals suffer from an excess of it. When the over-activity of the thyroid reaches a pathological state the condition manifesting as disease is called exophthalmic goiter. This disease is usually accompanied by enlargement of the gland and may be acute in its onset or it may assume a chronic form.

Acute cases are usually caused by a severe shock or a great fright, and ofttimes disappear within a few days without any treatment. In the chronic form the disease is serious and should be given the best of care. Among its chief symptoms are excessively rapid heart action, pulse ranging from 90 to as high as 160, over-excitability of the nerves, increased blood pressure, shallow, rapid breathing; in fact, an over reactivity of the whole organism. The eyes, which are bright and prominent, are pushed forward in the sockets, and the lids are held wide apart resulting in a startled expression.

A person afflicted with this disease has a high warm color, is restless, does not sleep well, becomes thin and remains so no matter how much he may eat. In some cases, there is extreme emaciation. The goiter may be very large, but at times it is only moderately so. There are twenty-one known different kinds of goiter. Exophthalmic goiter is curable in most cases without an operation, but the others usually require the use of a knife.

The cause of goiter is lack of iodine in the thyroid secretion. Iodine is rather abundantly present in sea water and in smaller quantities in the spring and soil water of most regions; but is some mountainous districts and in some other regions far removed from the sea, there is practically no iodine present for the thyroid to use. It may then enlarge in an effort to do its utmost to function properly under the existing circumstances; but still, it cannot supply the secretion in the absence of iodine.

Iodine in the form of sodium iodide is small doses will act as a goiter preventive. Prolonged physical, mental, and emotional rest free from all excitement and worry is often most effective in curing this disease. A surgical operation should always be the last resort, and in no case should all of the thyroid be removed as the result would be certain death.

This mysterious gland which gives balance to the brain, aids in digestion, and mixes iron with the food cells, secretes the iodine which combats the poisons of the body, helps to control the amount of fat stored there, and in some mysterious way both prevents and cures goiter. The more thyroid, the more energetic one will be--the less thyroid, the less energetic and the lazier.

Before man became upright, he was double-sexed and his entire creative force was centered in the organs of reproduction; at that time the thyroid was a sex gland pure and simple. Max Heindel says that when the sexes were divided one-half of the creative force of each individual was turned upward to build a brain and larynx. The brain was built to give the Ego an instrument with which to gather knowledge and create in the physical world, and the same force is feeding and building it today. The larynx was made in order that man might have an organ with which to express his thoughts in words.

*** Lymphatic System Related to Spiritual Work ***

"*The Lymphatic System is tubular and somewhat closely associated with the capillaries which connect the Venus and arterial circulations, terminating the large veins near the heart. The lymph which flows along its channel passes out one way, viz: toward the center of circulation, the heart. It is considered a system of small sewers for the body, simply because it collects the dish water of the tissues after they have all been bathed in the lymph which it carries. If you think of the tubes as drainage canals depleting the tissues of the wash water, you may think of these lymphatic glands as locks along the course of the channels at which the flow of lymph must stop and be filtered on its way to the Venus blood stream.*

The glands are located in the bends of the elbows, in the arm pits, in the popliteal spaces, in the groins, thickly scattered throughout the anterior part of the neck (the part in front of the cervical vertebrae), in the abdomen between the folds of the mesentery which suspends the small intestines to the backbone, and in the chest between the lungs, this space being known as the mediastinum.

Every one of the lymphatic vessels passes through one or more of these glands on its way to its destination in the veins. The lymph cells are the only cells in the body that possess no cell wall; they move about like jellyfish in water. When inflammation attacks the human body in any of its types, the lymph is more responsible, for all poisonous liquids pass at once into the lymphatic channels.

The glands are likely to be sickly, owing to the poisonous nature of the lymph which filters through them. The lymphatic system is threefold: it collects lymph from the tissues, chyle from the intestines after it has been manufactured in the process of digestion, and by means of the lymphatic glands manufactures lymph cells which are identical with the white blood corpuscles."
(**Max Heindel, *Occult Properties of Health and Healing***)

1. Structures and functions of the lymphatic system

2. Lymphatic Vessels

3. Formation and Circulation of Lymph

4. Lymph Trunks and Ducts

5. Thoracic (Left Lymphatic) Duct

6. Right Lymphatic Duct

7. Lymphatic Tissue

8. Lymph Nodes: Plasma and T Cells

9. Tonsils: Aggregates of large lymphatic nodules in mucus membranes

10. **Spleen**: B cell proliferation into plasma cells, phagocytosis of bacteria and worn our red blood cells, and storage of blood

11. **Thymus Gland**: T cell maturation

Medically-Related Terms

- Adenitis
- Hypersplenism
- Lymph adenectomy
- Lymphadenopathy
- Lymphangioma
- Lymphangitis
- Lymphedema
- Lymphoma
- Lymphostasis
- Splenomegaly
- Ruptured Spleen
- Splenectomy
- Tonsillectomy

Spleen

"*According to the Rosicrucian Teachings the **spleen** is the entrance gate of the solar forces which vitalize the body, and in the etheric counterpart of that organ the solar energy is transmuted to a vital fluid of a pale rose color, which from thence spreads all over the nervous system. We also learn that the rays of the Sun are transmitted either directly or reflected by way of the planets, or by way of the Moon. The direct rays from the Sun give spiritual illumination, those received from the planets produce intelligence, morality, and soul growth*."
(**Max Heindel, Rosicrucian Philosophy in Questions and Answer, Vol. 2**)

1. Structure, location, size

2. Lymphatic Tissue

3. Stroma of the Spleen

4. Tissue: White and Red Pulp

5. White Pulp: lymphatic tissue, mostly lymphocytes surrounding arteries

6. Red Pulp: venous sinuses filled with blood and cords of splenic tissue (splenic or Billroth's cords)

7. Splenic Cords: red blood cells, macrophages, lymphocytes, plasma cells, and granulocytes

8. Site of B cell proliferation into plasma cells

9. Main function: phagocytosis of bacteria and worn out or damaged red blood cells and platelets

10. Store and release blood when needed, squeezed from red pulp

11. In the fetus: participate in blood cell formation

12. Ruptured Spleen in abdominal trauma/Splenectomy

A Student, *The Mystery of the Ductless Glands* (Ch. 3 Abridged): THE SPLEEN

The spleen is the largest ductless gland. It is located at the left end of the stomach, between it and the diaphragm. It is bean-shaped and has a deep bluish-red color. It weighs from five to six ounces, is about five inches in length and three inches in breadth. It is soft, spongy, and fragile. Normally, the spleen is movable within certain limits. It moves with respiration or breathing. It may become greatly enlarged during disease, such as typhoid or malarial fever, or during a disease of the organ itself, such as leukemia, an affection in which the white corpuscles of the blood are greatly increased in number, accompanied by enlargement of the spleen itself. The spleen permanently enlarges during prolonged ague, and then becomes the so-called "*ague cake*." Enlargement of the spleen of infants is often due to syphilis, and if it occurs at the age of two or three months it is usually due to that cause. The spleen always enlarges during digestion. This gland is fed by the splenic artery, and its veins empty into the portal vein which discharges its contents into the liver.

The spleen appears in the embryo about the fifth week, as a localized thickening of the mesoderm, or middle layer of the embryonic cell. It is almost entirely surrounded by peritoneum membrane, and is held in position by two folds of this tissue. It is invested by two coats--an external moist, fibrous membrane, and an internal fibro-elastic one. The external coat is thin and smooth. The secretion of the spleen is called hemolytin and is the controller of the blood destruction. It also has a striking effect in stimulating the normal movement of the intestines. Cases of chronic constipation have been cured by the use of it. On the inner side of the spleen at a depression called the hilus the blood vessels, nerves, and lymphatics enter or leave.

The spleen manufactures white blood corpuscles, stores up iron, has a strong influence on the nervous system (controls intake of vital sugar fluid which traverses the nerves), and aids in digestion by taking in more vital essence from the sun during this process. Removal of the spleen is not fatal. After its removal there is an overgrowth of the lymphatic glands which take over its physical work. The etheric spleen does not decay simultaneously with the amputated physical member, but continues its existence and carries on its vital functions the same as

before. The spleen is the entrance gate for the solar force which vitalizes the dense body. Without this vital elixir no being can live.

From the spleen this sun force is sent to the solar plexus, where it meets the ether which has been extracted from the blood in the heart, and which, as soon as it is extracted, flows along the silver cord to the solar plexus where the seed atom of the vital body is located. This seed atom seems to have the same effect upon the ether as a prism has upon light, for the ether stream is refracted by it into the three primary colors: red, yellow, and blue. In people living the purely physical life, red overwhelmingly predominates; but as the individual advances spiritually, yellow becomes noticeable, and later, blue. The red stream coalesces with the colorless solar stream which constantly rushes to the solar plexus by way of the spleen, and it is the agent that changes this colorless solar fluid to a pale rose, and gives the entire vital body its tinge of delicate peach-blossom hue. From the solar plexus this fluid-like energy flows along the filaments composing the nervous system, and in this way, it permeates every part of the physical body, energizing each and every cell with its life force.

When a person is in health this life energy is specialized by the spleen and extracted from the blood in such large quantities that it cannot all be used in the body, and therefore it radiates outward through the pores of the skin in straight lines or streams. It is the outpouring of this excessive vital force, radiating from the body, that drives our poisonous gases, inimical microbes, and effete matter, and in this way assists in preserving a healthy condition of the physical organism. It also prevents armies of disease germs which swarm about in the atmosphere from entering the dense vehicle. In this way it serves a most beneficial purpose even after it has been used by the body and is returning to a free state.

The trained clairvoyant often observes a curious and astounding sight when gazing at the exposed parts of the body such as the face and hands, when suddenly there commences to flow from them a stream of stars, cubes, pyramids, and a variety of other geometrical figures. These forms are atoms belonging to the chemical ether that have served their purpose in the body and are being expelled through the skin. Each figure floats away from the individual a short distance and then disappears. Their color is an amethystine blue.

After eating, the vital solar forces attracted by the spleen is consumed by the body in great quantities. The two lower ethers contain the cement which the nature forces (nature spirits, so-called dead, Lucifer spirits, and Teachers from the higher creative Hierarchies) use in building food into the physical body.

When the meal is heavy, the outflow of the vital fluid from the body is perceptibly diminished and does not then cleanse the dense vehicle as thoroughly as it does when the food has been digested, nor is it as potent in keeping out inimical germs. Therefore, overeating renders a person more likely to catch cold or take disease. During ill health the spleen furnishes the vital body with very little solar energy, and at this time the dense body seems to feed on the vital body in consequence of which the latter becomes more transparent and attenuated in proportion as the physical vehicle exhibits a state of emaciation. As the cleansing vital radiations are almost entirely absent during sickness, complications then set in very easily.

Ordinarily if any part of the body or any organ is removed and there is no longer any use for the etheric counterpart, that part of the vital body gradually wastes away; but in the case of the spleen no such disintegration takes place for, as stated before, the etheric spleen has a great work to perform, and if the physical body is to live the former must of necessity remain intact and continue with its work, viz., the attracting of solar energy or force to the dense vehicle.

The glands are an adjunct to the vital body, but the desire body has gained a hold in the spleen and makes the white corpuscles there. The white blood corpuscles are destroyers. The desire body uses the blood to carry these tiny destroyers all over the physical body. They pass through the walls of the arteries and veins whenever annoyance is felt, and especially in times of great anger; for then the rush of forces in the desire body causes the arteries and veins to swell, and that opens up the way for the white blood corpuscles to pass out through the thin walls of these distended blood vessels into the surrounding tissue of the body, where they form bases for the earthy matter which kills the dense vehicle.

The desire body is constantly destroying and breaking down physical tissue, which the vital body is constantly building up; and it is the war between the two that results in consciousness in the physical world. The etheric forces in the vital body act in such a way as to convert as much of the food as possible into blood; and blood is the highest product of the vital body. Red blood corpuscles are circular discs, concave on both sides, and have no nuclei. They distribute oxygen through the body. The white corpuscles are irregular in shape, have nuclei, and are possessed of the power of amoeboid movement.

The way the desire body works in forming white blood corpuscles in the spleen is as follows: Evil thoughts, fear, and anger interfere with the power of evaporation in the spleen. The desire body seizes the opportunity and forms a speck of plasm, the sticky material of an animal cell, which becomes the foundation of the white corpuscle. This is at once seized by a thought elemental, which forms a nucleus and embodies itself therein. Then the elemental commences to live a life of destruction, coalescing with waste products and decaying elements wherever obtainable, making the physical body a charnel house instead of the temple of an indwelling spirit. Every white corpuscle which has thus been formed and taken possession of by an outside entity is to the spirit a lost opportunity; and the more of the lost opportunities there are in the physical body the less that vehicle is under the control of the Ego. White blood corpuscles are always present in large numbers in all diseases.

Thymus Gland

"*Both Venus and her higher octave, Uranus, govern the functions of nutrition and growth, but in different ways and for different purposes. Therefore, Venus rules the* ***thymus gland,*** *which is the link between the parents and the child until the latter has reached puberty. This gland is located immediately behind the sternum or breast bone. It is largest in antenatal life and through childhood while growth is excessive and rapid. During that time the vital body of the child does its most effective work, for the child is not then subject to the passions and emotions*

generated by the desire body after that comes to birth at or about the fourteenth year. But during the years of growth the child cannot manufacture the red blood corpuscles as does the adult, for the unborn, unorganized desire body does not then act as an avenue for the Martian forces which assimilate the iron from the food and transmute it into hemoglobin. To compensate for this lack there is stored in the ***thymus gland*** *a spiritual essence drawn from the parents, and with this essence provided by their love the child is able to accomplish the alchemistry of blood temporarily until its desire body becomes dynamically active. Then the* ***thymus gland*** *atrophies and the child draws from its own desire body the necessary Martian force. From that time, under normal conditions, Uranus, the octave of Venus, and ruler of the pituitary body, takes charge of the function of growth and assimilation in the following manner*."
(**Max Heindel,** ***Occult Properties of health and Healing***)

1. Structure, location, and size.

2. Two thymic lobes and capsule

3. Trabeculae (extensions into lobes) divide the lobes into lobules

4. Each lobe: peripheral cortex and central medulla

5. Cortex: tightly packed lymphocytes held by reticular fibers

6. Immature T cells in the blood from the bone marrow go to thymus to mature

7. Medulla: epithelial cells and scattered lymphocytes

8. Epithelial cells produce thymic hormones to aid in maturing the T cells

9. Thymic (Hassall's) corpuscles: concentric rings of epithelial cells

10. Thymic gland is largest in infants to a maximum size of 40 grams at 10-12 years of age

11. After puberty it is replaced by fat and connective tissue

12. At age of maturity it has atrophied but still functions in maturation of T cells

A Student, *The Mystery of the Ductless Glands* (Ch. 4 Abridged): THE THYMUS GLAND

THE GLAND OF CHILD DEVELOPMENT

The thymus gland is situated in the chest between the two lungs and behind the upper part of the sternum or breastbone. It descends and covers the upper portion of the heart, overlapping the great vessels at the top of the latter. It is a brownish mass, which when cut, has the appearance of a sweetbread. It is placed over the

trachea or windpipe. It rises as a growth from the wall of the third pouch of the pharynx (a funnel-shaped cavity in the alimentary canal beginning behind the mouth); it reaches its greatest at the beginning of puberty. At birth it weighs about half an ounce. At puberty it weighs a little over an ounce. It is about two inches in length, an inch and a half broad, and a fourth of an inch thick. It is readily found in dissection until the twentieth year. Its gradual disappearance thereafter is marked by a loss of glandular structure, which is replaced by fibrous and adipose tissue. Vestiges of the characteristic thymus tissue, however, persist and some of the secreting cells remain throughout life.

In the past it was believed that at puberty the thymus atrophied, but now it is known that some of its secreting cells persist throughout life. When too many of these cells persist, the gland becomes from five to ten times as large as normal and a number of other features become prominent which make the individual extraordinary, the victim of the "*status thymicus*," who amid the hazards of life will react in a most amazing way. It is that the thymus is the gland that keeps children childish, and sometimes makes children out of adults. The arteries that supply the thymus with blood are chiefly from the internal mammaries, an indication of the close relation existing between the mother and child. The nerves, which are small, come from the sympathetic or involuntary nervous system and the tenth cranial or pneumogastric nerve.

During childhood the thymus is the organ that promotes growth of bones, but at puberty a decreased functioning begins. It is believed that the sex glands arising to functioning level at that time exert a restraining influence upon it.

The secretion of the thymus is called thymovidin, and is believed to be the controller of the growth of children. When an enlarged thymus is present in a newborn baby, the starting of the process of breathing, that is, the introduction of the infant to the oxygen in the air, may be an exceedingly prolonged difficult matter. Such a baby is said to be born blue; the breathing for days produces a harsh, whistling sound, becoming normal for a time, to be followed by spells when there is trouble in breathing, breathlessness, accompanied by blueness of the skin and threatened death.

When the body of a child is suffering from under-nutrition, there is a rapid decline in weight of the thymus. This proves that the size and condition of a child's thymus are an index of the state of nutrition of its body. It has been proved that underfeeding for four weeks will reduce the thymus to one-third its normal size. This gland appears to act as a storage and reserve organ, affording some protection against the limitation of growth on account of lack of food.

The secretion of the thymus gland controls normal bone growth and muscular metabolism in some definite way during the period of childhood. This gland particularly influences the development of the adrenal cortex (outer part of it), the pineal gland, the thyroid gland, and the prostate gland. Thymovidin injection has a specific effect in relieving the fatigue of the voluntary muscles.

The thymus gland grows rapidly during the first two years of a child's life. The reason for this is that the child is then nursed, and the vital ether contained in the mother's milk especially furthers the growth of this organ. The thymus gland of

children nursed by a human mother is always larger than that of children brought up on the milk of animals, and such children are always more amenable to the control of anyone else. From the time when nursing is discontinued the disintegrating atoms of the thymus gland circulate in the bloodstream, and since they are impregnated with the vital ether of the mother obtained during the time of nursing the close physical tie between them remains until the gland has become greatly decreased. Children nursed on human milk have greater vitality than those brought up on the milk of animals, because animal ether is not permanently absorbed by the thymus gland as the human ether is.

The child does not manufacture its own red blood corpuscles in the same way that the adult does. The reason for this is that the positive pole or energy of the desire body of the child is comparatively inactive; in consequence of which this vehicle does not act as an avenue for the forces (Martian) which take the iron from the blood and change it into hemoglobin (the red coloring matter of the blood corpuscles). To compensate for this inaction there is stored in the thymus gland of the child a spiritual essence which is drawn from the parents at the time of conception; and this substance accomplishes the alchemistry of the blood temporarily for the child until the desire body becomes dynamically active which is about the age of fourteen.

The thymus gland controls the physical growth of children, the greater part of which takes place approximately before the fourteenth year of age. During this time, it holds the other glands in check, delays puberty, and further normal brain development.

When the persistence of the thymus after puberty is TOO GREAT, the gland being from five to ten times as large as normal, the individual develops a case of STATUS THYMICUS which is weirdly interesting. This condition tends towards producing the feminine expression of the male, and the masculine expression of the female. In other words, it causes an arrest of masculinization or feminization, as the case may be, sometimes resulting in the peculiar complex that the man will desire the society of men more than that of women, and that women will prefer the society of women to that of men.

THYMUS TYPE OF PERSONALITY

Up to the time the permanent teeth make their appearance the thymus is the dominant gland, and it is noticeable that the child's form in both sexes is very much alike. After this a gradual differentiation takes place although the change does not become marked until the time of puberty. Ordinarily from this time on the thymus functions less and less, and the other glands increase in their activity. But many times, the thymus gland does not cease in its action, in which cases we have individuals whose whole life is dominated by this gland. Such people belong to the thymus centered type. The features of these individuals remain rounded and childlike; the children belonging to it are well proportioned and perfectly formed, with delicately chiseled features. The skin is transparent and flushes readily; the hair is long and silky. Such children are the embodiment of beauty. They are the "*angel children*" who are admired for the coarse conflicts of life and usually die young.

The thymus type is essentially feminine. The figure, sometimes medium height, and sometimes tall, is slender, the limbs are rounded, and the entire body is gracefully formed. The skin is fine, delicate, and velvety, a dead white or peaches and cream, the hair soft and silky, with little or none on the face; the finely molded features are beautifully proportioned, the eyes blue or brown, with long lashes, the lips thin and the chin oval. Sometimes in the adult the chin is receding, and the mouth is not well formed. The teeth are milky-white, thin and translucent, scalloped or crescentric at the grinding edge.

We wish to reiterate that this type of individual does not have great endurance; and therefore, the best of care should be given to the physical body.