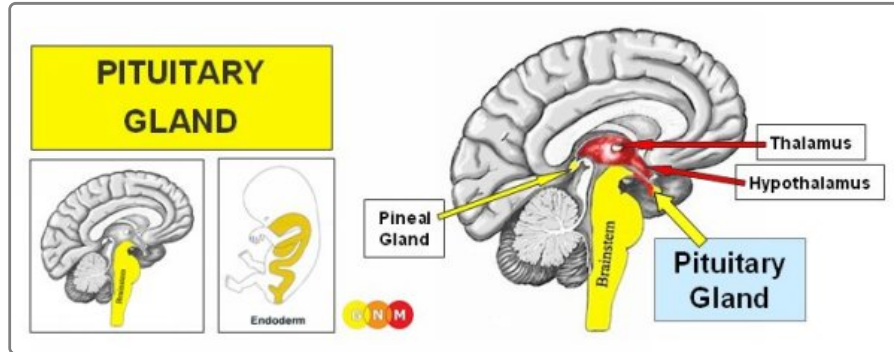
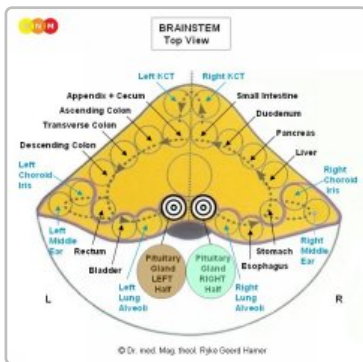


BRAIN



STH Producing Cells Prolactin Producing Cells LH and FSH Producing Cells

DEVELOPMENT AND FUNCTION OF THE PITUITARY GLAND: The pituitary gland, or hypophysis, is an endocrine gland (see also pineal gland, or epiphysis) situated at the base of the brain in the sella turcica, a saddle-shaped depression in the sphenoid sinus. It is a protrusion off the bottom of the hypothalamus. The pituitary gland secretes hormones (secretory quality) responsible for physical growth (growth hormone STH-Somatotropin Hormone), reproduction (LH-Luteinizing Hormone promotes ovulation; FSH-Follicle Stimulating Hormone plays a role in pubertal development), metabolism (TSH-thyroid stimulating hormone), cortisol levels (ACTH-adrenocorticotrophic hormone) and some aspects of pregnancy, childbirth (oxytocin induces the contraction of the uterus muscles during labor) and lactation (prolactin stimulates the breast glands to produce milk). The anterior lobe of the pituitary gland consists of intestinal cylinder epithelium, originates from the endoderm and is therefore controlled from the brainstem. The posterior lobe is of ectodermal origin (to date, the related biological conflict is unknown).



BRAIN LEVEL: In the brainstem, the pituitary gland has two control centers, positioned within the ring form of the brain relays that control the organs of the alimentary canal.

The right half of the pituitary gland is controlled from the right side of the brainstem; the left half is controlled from the left brainstem hemisphere. There is no cross-over correlation from the brain to the organ.

NOTE: The mouth and pharynx, tear glands, Eustachian tubes, thyroid gland, parathyroid glands, pituitary gland, pineal gland, and choroid plexus share the same brain relays.

STH-PRODUCING CELLS

BIOLOGICAL CONFLICT: The biological conflict linked to the STH-Somatotropin Hormone producing cells of the pituitary gland is a morsel conflict.

In line with evolutionary reasoning, morsel conflicts are the primary conflict theme associated with brainstem-controlled organs deriving from the endoderm.

RIGHT HALF of the pituitary gland: Equivalent to the right half of the mouth and pharynx, the right half of the pituitary gland correlates to an "ingoing morsel" and to "not being able to grab a morsel because the individual is too small". Example: a young child is competing with an adult or a bigger child, let's say, in sports such as soccer.

LEFT HALF of the pituitary gland: Equivalent to the left half of the mouth and pharynx, the left half of the pituitary gland correlates to an "outgoing morsel" and to "not being able to get rid of a morsel because the individual is too small" (originally, the feces morsel). Example: a child or adolescent has to take over a parent's role.

In general, the conflict is brought on by **feeling "too little"** (provoked, for instance, by comments of a parent, teacher, or coach). The distress of being "too small" can also occur in adults.

CONFLICT-ACTIVE PHASE: During the **conflict-active phase**, the **STH producing cells** in the pituitary gland proliferate proportionally to the intensity of the conflict. The **biological purpose of the additional cells** is to increase the production of growth hormones to put the individual into a better position to grab (right half) or get rid of a morsel (left half). With prolonged conflict activity a compact tumor (**secretory type**) forms as a result of the continuous cell augmentation. In conventional medicine, a tumor in the pituitary gland is called a **pituitary adenoma** (generally considered as "benign").

In children and adolescents, the **overproduction of growth hormones** leads to real, potentially excessive physical growth (**gigantism**). If the conflict happens in adulthood the increased hormone production causes enlarged hands, feet, and facial feature (**acromegaly**). When the left pituitary gland is affected, the lips also enlarge (the **gullet opening** becomes larger so that the morsel can be better expelled).



Maurice Tillet (1903 – 1954), a French professional wrestler, developed acromegaly in his twenties.

At the age of 13, Maurice still had a normal stature.

HEALING PHASE: In the **healing phase**, **fungi or mycobacteria** such as TB bacteria remove the cells that are no longer required. The healing process is accompanied by **night sweats**.

NOTE: Circumventing the **blood-brain barrier system**, the pituitary gland receives its blood supply directly from the **internal carotid artery**. This allows mycobacteria to assist healing (see also **pineal gland** and **choroid plexus**).

If healing cannot be complete (**hanging healing**) because of recurring **conflict relapses**, more and more pituitary gland tissue is lost leading to a decrease or complete cessation of STH-Somatotropin Hormone production. During the growing period of a child, this results in a short stature (**dwarfism**). The delayed growth might already occur during pregnancy prompted, for example, by a doctor's comment such as "the fetus is **too small**" (see **intra-uterine conflicts**). In this case, the condition is termed "**intra-uterine growth retardation**" (IUGR).

PROLACTIN PRODUCING CELLS

BIOLOGICAL CONFLICT: The **biological conflict** linked to the **prolactin producing cells** of the pituitary gland is a **feeding conflict** as in "**not being able to nourish the child or the family**", let's say, because of financial difficulties (e.g., unemployed or self-employed single mothers). The conflict can affect either of the two halves of the gland.

CONFLICT-ACTIVE PHASE: During the **conflict-active phase**, the **prolactin producing cells** in the pituitary gland proliferate proportionally to the intensity of the conflict. The **biological purpose of the additional cells** is to increase the secretion of prolactin to be better able to nurse the child or the family. With lasting conflict activity the additional cells form a compact growth (**secretory type**). In conventional medicine, the tumor is termed a "**secretory pituitary adenoma**" or **prolactinoma**. The **overproduction of prolactin** causes an increased milk production, if a woman is breastfeeding at the time of conflict activity. However, even if a woman is not nursing, the increase of prolactin still results in a secretion of milk, noticeable as a milky nipple discharge or spontaneous flow of milk from the breasts. Lactation also occurs in males who suffered a feeding conflict (see also **breast cancer in men**). In both sexes the condition is called **galactorrhea**.

HEALING PHASE: With a **prolonged healing phase** more and more glandular tissue gets lost as a result of the continuous cell removal process. In nursing females, this causes a reduced or complete stop of milk production. If this happens during **pregnancy**, a woman has little or no breast milk after the birth of her child.

NOTE: In mammals, the milk flow is stimulated by eating the placenta of their young after birth. Studies at the University of South Florida have shown that new mothers who ate their own placenta had a significantly improved lactation. A biological conflict related to the placenta triggered, for example, by a doctor's comment such as "the placenta does not produce any amniotic fluid", might possibly also affect milk production (this has not been confirmed by Dr. Hamer's research).

LH and FSH PRODUCING CELLS

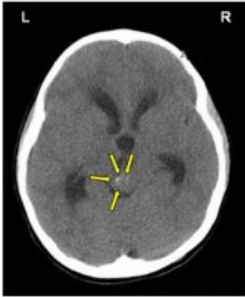
BIOLOGICAL CONFLICT: The **biological conflict** linked to the **LH-Luteinizing Hormone** and **FSH-follicle stimulating hormone** producing cells of the pituitary gland is "**being too immature**", literally or figuratively, with an overproduction of **LH and FSH** in the **conflict-active phase**. The conflict occurs before puberty. In children, continuous conflict activity leads to a **premature development** (precocious puberty). A **long-lasting healing phase** causes a decrease of LH and FSH production resulting in **delayed puberty** (no breast and ovary development in girls by the age of 13 or growth of testes in boys by the age of 14).

This brain CT shows calcification (upper arrows) in the pituitary gland (compare with

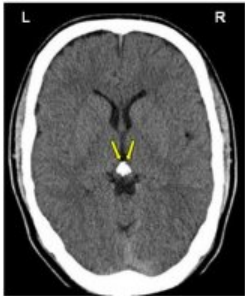
conventional medicine, a tumor in the pineal gland is called a **pinealoma**. A large growth might constrict the oculomotor nerve (third cranial nerve) that supplies the majority of the **extraocular muscles** controlling eye movements. Damage to the nerve leads to an inability to move the affected eye normally (see **strabismus**). If the tumor compresses the **third ventricle**, this causes a **hydrocephalus**.

HEALING PHASE: Following the **conflict resolution (CL)**, **fungi or mycobacteria** such as TB bacteria remove the cells that are no longer needed. The healing process is accompanied by **night sweats**. During the decomposing process the tumor might bleed. The bleeding occurs when the outer wall of the tumor breaks (compare with **brain bleeding** due to the rupture of a brain cyst).

NOTE: Circumventing the **blood-brain barrier system**, the pineal gland receives its blood supply directly from the cerebral arteries. This allows mycobacteria to assist healing (see also **pituitary gland** and **choroid plexus**).

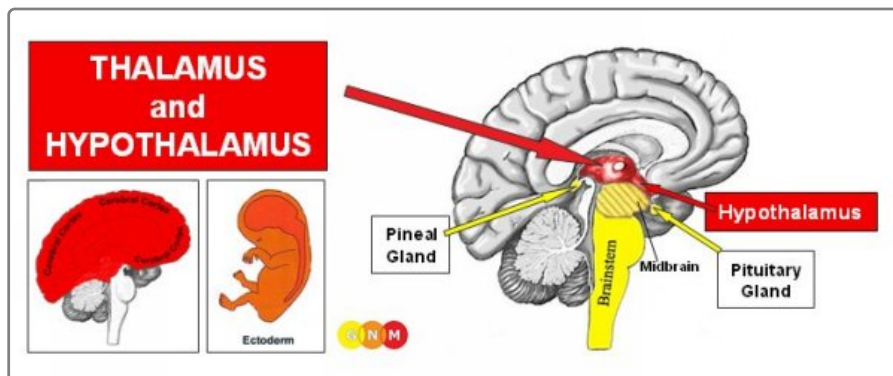


This brain scan was taken after a pinealoma was removed with the help of TB bacteria. The caverns that are created after the tumor has been decomposed are filled with calcium. Here already visible as white specks. Tiny calcified structures in the pineal gland, indicating a short healing phase, are known as **corpora arenacea**, or **brain sand**.



This brain CT shows the completion of the calcification process (compare with calcification in the **pituitary gland** and **choroid plexus**).

If the required microbes are not available upon the resolution of the conflict, because they were destroyed through an overuse of **antibiotics**, the tumor cannot be broken down and therefore remains. Eventually the growth becomes encapsulated. A **pineal cyst** is an encapsulated **pinealoma** containing fluid due to **water retention**.



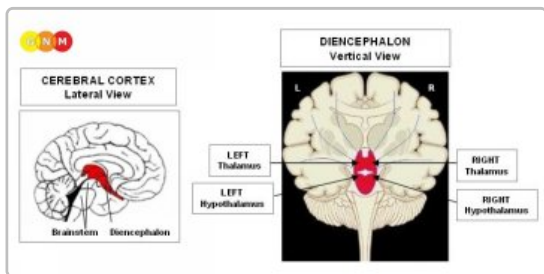
Biological Conflict

Conflict-Active Phase

Healing Phase

DEVELOPMENT AND FUNCTION OF THE THALAMUS AND HYPOTHALAMUS: The thalamus and hypothalamus are situated deep in the brain between the cerebral cortex and the midbrain. They form the larger part of the diencephalon (interbrain). The two halves of the thalamus are located symmetrically on each side of the **third ventricle**. The hypothalamus is located below the thalamus. The hypothalamus is the coordinating center of the **autonomic nervous system** and the endocrine system, affecting sleep rhythm, metabolic functions, intake of food and water (hunger, thirst), body temperature, and the release of hormones from the **pituitary gland**. The thalamus and hypothalamus originate from the **ectoderm** and are controlled from the diencephalon.

NOTE: Like the **pineal gland**, the thalamus receives its blood supply directly from the **cerebral artery** and is therefore not isolated from the body by the **blood-brain barrier**.



BRAIN LEVEL: The thalamus and hypothalamus are controlled from the **diencephalon** (interbrain), which is located in the central part of the cerebrum just above the midbrain. The right thalami are controlled from the right side of the diencephalon; the left thalami from the left side. There is no cross-over correlation from the brain to the organ. **NOTE:** In case of the thalamus and hypothalamus, the organs and their control centers are in the same location (compare with **pituitary gland** and **pineal gland** that are situated in the center of the brain but are controlled from the brainstem).

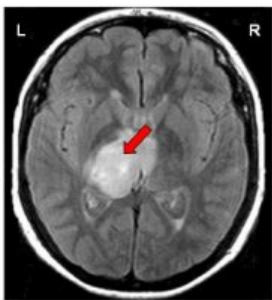
BIOLOGICAL CONFLICT: complete self-abandonment; complete resignation ("I wish I were dead")

CONFLICT-ACTIVE PHASE: change of hormonal parameters and activation of the **autonomic nervous system** (**sympathicotonia**) in order to be able to manage the stress. **Symptoms: wakefulness and extreme restlessness.**

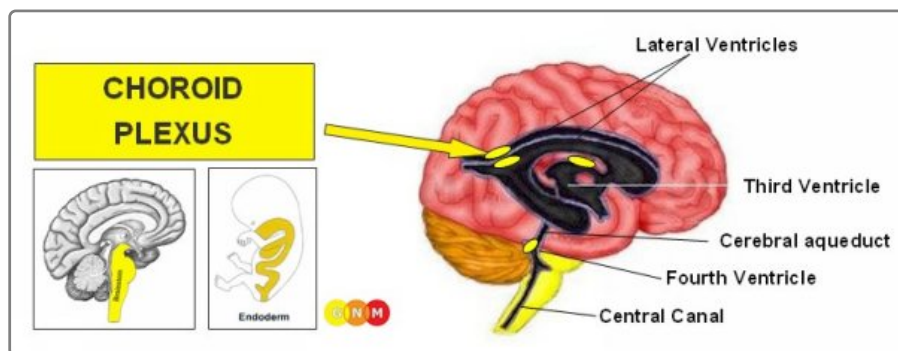
NOTE: The thalamus and hypothalamus belong to the group of organs that respond to the related conflict not with cell proliferation or cell loss but with hyperfunction (see also **periosteum**) or functional loss (see **Biological Special Programs** of the inner ear (**cochlea** and **vestibular organ**), **olfactory nerves**, **retina** and **vitreous body** of the eyes, islet cells of the pancreas (**alpha islet cells** and **beta islet cells**), **skeletal muscles**).

HEALING PHASE: In the course of the healing phase the hormonal parameters normalize and the nervous system switches into **vagotonia**.

With the **SYNDROME**, that is, with **water retention** as a result of an active **abandonment** and **existence conflict**, there is a risk that a large **brain edema** (**PCL-A**) compresses the **third ventricle** (see **hydrocephalus**); even more so, when both halves of the thalamus undergo the healing process at the same time.



This MRI taken with contrast substance shows a healing process in the area of the brain that controls the left thalamus (view the **GNM diagram**). In conventional medicine, the "mass" is erroneously diagnosed as a "brain tumor" ("thalamic glioma").



Biological Conflict **Conflict-Active Phase** **Healing Phase**

DEVELOPMENT AND FUNCTION OF THE CHOROID PLEXUS: The choroid plexus is a dense network of small blood vessels in the ventricular system of the brain. There are four choroid plexuses in the brain, one in each of the ventricles.

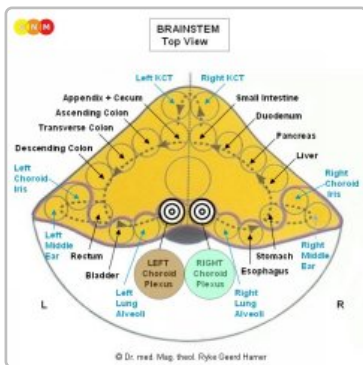
The **ventricular system** is made up of four cavities joined by narrow passages to allow the circulation of cerebrospinal fluid. The highest ventricles are the two lateral ventricles deep within the cerebral hemispheres. Each lateral ventricle is structured in a C-shape, reaching from the **temporal lobe** to the **premotor-sensory cortex**. The third ventricle below them is located in the **diencephalon** (interbrain) between the right and left **thalamus**. The fourth ventricle between the brainstem and the cerebellum connects with the subarachnoid space (see **meninges**) and the central canal of the spinal cord. The cerebral aqueduct joins the third and fourth ventricle. The ventricles and cerebrospinal fluid protect the brain and spinal cord from injury.



This image highlights the four ventricles as they show on a brain CT.

The choroid plexus consists mainly of ependymal cells. The main function of the ependymal cells is the **production of cerebrospinal fluid** (**secretory quality**) through the filtration of arterial blood. Cerebrospinal fluid (CSF) drains from the lateral ventricles into the third ventricle further via the cerebral aqueduct into the fourth ventricle. From there the fluid escapes through lateral openings of the fourth ventricle into the subarachnoid space. The ependymal cells of the choroid plexus form a thin layer (ependyma) that covers the inner wall of the ventricles and surrounds the core of the plexus. The ependyma acts as an important filter, known as the **blood-cerebrospinal fluid barrier** (BCSFB). The blood-cerebrospinal fluid barrier is in addition to the **blood-brain barrier** (BBB) a dynamic interface to maintain a stable environment for brain cells (neurons). The two barriers restrict the passage of large molecules, including **microbes** and **cancer cells**, into the brain while allowing the entry of water, lipid-soluble substances (oxygen, carbon dioxide), and molecules such as amino acids and glucose. Sugar is nutrition for the brain. Cerebrospinal fluid, also known as cerebrospinal "liquor" (sweet substance), is therefore rich in glucose (the brain consumes 25% of the body's energy using about 150g of glucose daily).

The ependymal cells of the choroid plexus originate from the **endoderm** and are therefore controlled from the brainstem. **Neuroglial cells** that provide support to the ependymal cells are of **new mesodermal** origin.



BRAIN LEVEL: In the **brainstem**, the choroid plexus has two control centers positioned within the **ring form** of the brain relays that control the organs of the **alimentary canal**.

The ependyma of the right lateral choroid plexus is controlled from the right side of the brainstem; the ependyma of the left lateral choroid plexus is controlled from the left brainstem hemisphere. There is no cross-over correlation from the brain to the organ.

NOTE: The mouth and pharynx, tear glands, Eustachian tubes, thyroid gland, parathyroid glands, pituitary gland, pineal gland, and choroid plexus share the same brain relays.

BIOLOGICAL CONFLICT: According to its function as the "waterworks of the brain", the **biological conflict** linked to the choroid plexus is "**the brain is not moist enough**" or "**the brain is dry**" experienced, figuratively, when one has difficulties thinking (the thoughts don't flow smoothly) or memorizing. A distressing mental "black out", **short-term memory loss** (see **separation conflict**), or learning difficulties could cause such a conflict.

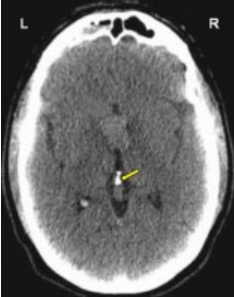
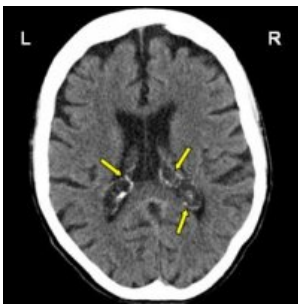
CONFLICT-ACTIVE PHASE: Starting with the **DHS**, during the **conflict-active phase** ependymal cells proliferate proportionally to the intensity of the conflict. The **biological purpose of the cell increase** is to enhance the production of cerebrospinal fluid. With prolonged conflict activity a compact tumor (**secretory type**) forms as a result of the continuing cell augmentation. In conventional medicine this is called an **ependymoma**. Contrary to a **glioma**, an ependymoma is a real brain tumor (see also **pinealoma** and a **pituitary adenoma**). Which one of the four choroid plexuses is affected by the conflict is random.

NOTE: Based on the wrong assumption that ependymal cells are "specialist **glial cells**", conventional medicine claims that an ependymoma is a type of glioma, also termed choroid glioma. In reality, ependymal cells are descendants of the **intestinal mucosa** and therefore of **endodermal origin**, while **neuroglia** (brain connective tissue) originates from the **new mesoderm**.

HEALING PHASE: Following the **conflict resolution** (CL), **fungi** or **mycobacteria** such as TB bacteria remove the cells that are no longer required. With the participation of TB bacteria the condition is called **ependyma tuberculosis**, typically accompanied by **night sweats**. During the decomposing process the tumor might bleed into the affected ventricle. The bleeding occurs when the outer wall of the tumor breaks (compare with **brain bleeding** due to the rupture of a brain cyst).

NOTE: Circumventing the **blood-brain barrier system** the choroid plexus receives its blood supply directly from cerebral arteries. This allows mycobacteria to assist the healing process (see also **pineal gland** and **pituitary gland**).

After an ependymoma has been decomposed, caverns remain at the site that are eventually filled with calcium, showing as calcium deposits on a brain scan (here in the lateral ventricles).



This brain CT demonstrates a complete calcification process in the third ventricle (compare with calcification in the **pituitary gland** and **pineal gland**).

HYDROCEPHALUS

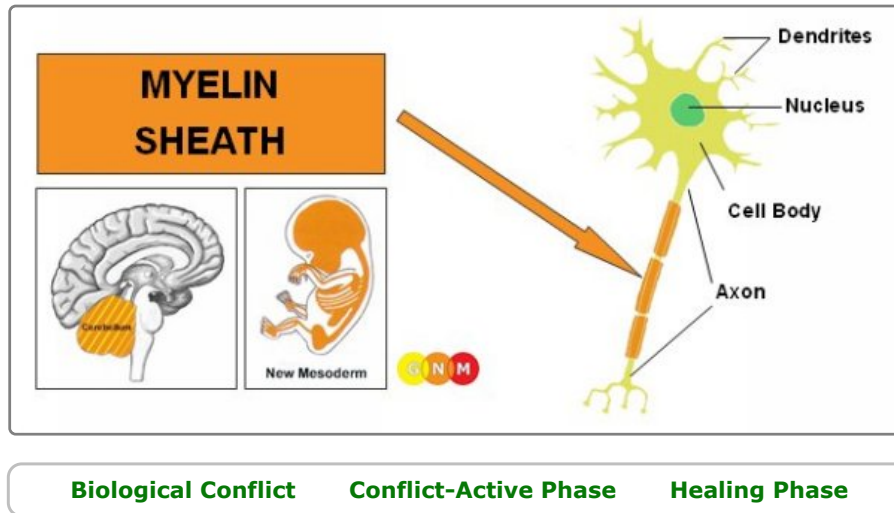
A hydrocephalus is a condition in which excess cerebrospinal fluid (CSF) accumulates in the cavities of the brain. This occurs when a tumor or a big **brain edema** compresses one of the ventricles or the cerebral aqueduct. A **brain edema** in the control center of the **kidney parenchyma** could lead to a compression of the cerebral aqueduct. Swelling in the brain relays of the **lung alveoli** (related to a **death-fright conflict**) can compress the fourth ventricle resulting in the dilation of the entire ventricular system. A healing process involving the **thalamus** or the **myocardium** might block the third ventricle from both sides. Brain edemas usually enlarge due to **water retention** (the **SYNDROME**) and an active **abandonment and existence conflict**. The accumulation of CSF and the pressure caused by the fluid buildup increases the size of the ventricles creating an **internal hydrocephalus**. With an **external hydrocephalus** the fluid accumulation occurs in the **subarachnoid space**; if it involves the frontal lobe it is characterized by a prominent forehead developing in infancy.

The enlargement of the head happens when the skull bones are not fully fused, which is the case in fetuses and infants up to the age of two. Unborn children experience **existence conflicts** and **death-fright conflicts** because of extreme distress in the womb (see **intra-uterine conflicts**); newborns suffer **abandonment conflicts** when they are separated from the mother at birth. In adults, the skull cannot expand to accommodate the buildup of cerebrospinal fluids. Subsequent symptoms are headaches, nausea, and drowsiness. Strong, elevated intracranial pressure may result in an elongation of the cerebellar tonsils, the rounded lobes underneath the cerebellar hemispheres; a life-threatening condition occurs when the pressure pushes the tonsils out of the skull (the descent of the cerebellar tonsils is termed "tonsillar herniation"). Lasting increased pressure on the **optic nerve** cuts off the oxygen supply to the optic nerve, causing it to swell. Swelling of the optic nerve at the point where the nerve joins the eye is called a **papilledema** (compare with **excavation papillae** due to permanent elevated intraocular pressure). Damage to the optic nerve from papilledema can result in visual field loss. With hydrocephalus, a weakening of the nerves that control eye movement creates eye misalignment (see **strabismus**). Symptoms such as **weakness of the legs**, **epileptic seizures**, or **speech problems**, however, are not brought on by a hydrocephalus, as claimed, but relate to specific **Biological Special Program**.



This brain CT shows an expansion of the lateral ventricles (internal hydrocephalus) caused by an accumulation of cerebrospinal fluid.

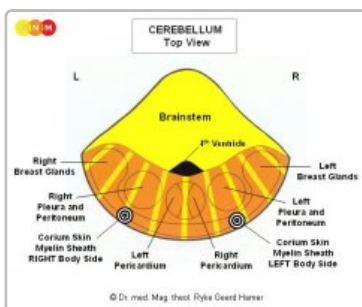
A compression of the fourth ventricle can be the result of an **acute fear of life conflict** leading to a hydrocephalus after the conflict has been resolved. In this example, the corresponding **Hamer Focus** reaches over the entire brainstem. Excessive noise during pregnancy, for example, could trigger the panic in the unborn (see **intra-uterine conflicts**).



Biological Conflict Conflict-Active Phase Healing Phase

DEVELOPMENT AND FUNCTION OF THE MYELIN SHEATH: The myelin sheath forms an insulating layer around nerves, including nerves in the brain and spinal cord. Each nerve cell or **neuron** consists of a cell body with a **nucleus** (which contains DNA) and **dendrites** (nerve endings) projecting out from the cell body to receive signals from other neurons. The **axon** is an extension that differs from the dendrites insofar as it carries impulses away from neurons, sometimes over a considerable distance. Longer axons are covered with a myelin sheath. The function of the myelin sheath is to speed the electrical transmission along the nerve cells. The myelin sheath enveloping motor neurons aids in the conduction of nerve impulses to the **muscles**; sensory neurons communicate sensory stimuli such as touch. Myelinated neurons are therefore typically found in the peripheral nerves.

Myelin originates from Schwann cells, which are specialized glial cells. Glial cells (also called **neuroglia**) provide support and protection for neurons in the brain and spinal cord (central nervous system). Schwann cells, on the other hand, are found in the peripheral nervous system (outside of the brain) where they form the myelin sheath around nerve cells. In humans, myelination begins in the 14 week of the fetal development. Like glia, myelin consists for the most part of **connective tissue**. The myelin sheath derives therefore also from the **new mesoderm**.



BRAIN LEVEL: Exception: Even though the myelin sheath is of new mesodermal origin, it is controlled from the **cerebellum** rather than from the cerebral medulla.

The myelin sheath on the right side of the body is controlled from the left side of the brain; the myelin sheath on the left side of the body is controlled from the right brain hemisphere. There is a cross-over correlation from the brain to the body.

NOTE: The myelin sheath is controlled from the same brain relay as the **corium skin**.

BIOLOGICAL CONFLICT: The **biological conflict** linked to the myelin sheath is a **touch** conflict of not wanting to be touched because the touch is experienced as painful, unpleasant or unwanted (compare with **separation conflict** related to the **outer skin**). The fear of being touched (physical abuse, sexual abuse) can already evoke the conflict. The myelin sheath also responds to a **pain conflict** triggered by acute pain due to an injury, fall, or hit. Severe pain, for example, **bone pain** can also activate the **Biological Special Program**.

CONFLICT-ACTIVE PHASE: Starting with the **DHS**, during the **conflict-active phase** the myelin sheath thickens through cell proliferation forming a **neurofibroma** beneath or on the skin (like a **melanoma**, the neurofibroma is an archaic form of defense). The size of the nodule(s) is determined by the intensity of the conflict. The **biological purpose of the cell increase** is to block the peripheral sensory stimuli from being transmitted to the brain. The extra tissue absorbs the unwanted touch or pain. **Symptom:** a **loss or decreased sensitivity to touch at the affected area** (see also hyposensitivity involving the **epidermis** or the **periosteum**).

NOTE: Even though myelin and **neuroglia** are related tissues they behave differently. A neurofibroma (also

referred to as a “peripheral glioma”) grows during the conflict-active phase (like all tissues that are controlled from the **cerebellum**) whereas the proliferation of neuroglia (see “**brain tumor**”) occurs in the healing phase (in PCL-B).



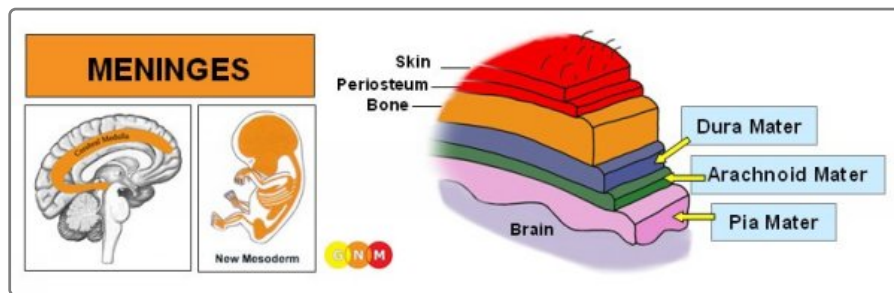
The appearance of a neurofibroma under the skin (subcutaneous neurofibroma) is similar to that of a **lipoma** involving the **fat tissue**. When situated immediately beneath the skin, neurofibromas are readily movable.

NOTE: Whether the right or left side of the body is affected is determined by a person’s **handedness** and whether the conflict is **mother/child** or **partner**-related. A **localized conflict** affects the part of the body that is associated with the touch conflict.



Multiple neurofibromas beneath or on the skin (cutaneous neurofibroma) are termed **neurofibromatosis type 1 (NF1)** or **Recklinghausen’s disease**. **Café-au-lait** pigmentations (coffee-colored patches on the skin) classified as symptoms of NF1 are, based on GNM, related to the **epidermis** rather than to the nerve sheath. The fact that café-au-lait spots are observed in the majority of people with NF1 is an indication that the two Biological Programs (**separation conflict** and **touch conflict**) often run concurrently.

HEALING PHASE: Following the principle of **organs deriving from the new mesoderm** (“surplus group”), the neurofibroma(s) stay in place. With the completion of the healing phase the sensitivity returns to normal.



DEVELOPMENT AND FUNCTION OF THE MENINGES: The meninges are the three thin membranes that envelop the brain and the spinal cord. The primary function of the meninges is to protect the central nervous system. The meninges consist of the **pia mater** (inner meninges), which follows closely the contours and folds (gyri and sulci) of the brain, the **arachnoid mater**, and the **dura mater** (outer meninges). The space between the pia mater and arachnoid mater (**subarachnoid space**) is filled with cerebrospinal fluid (see **choroid plexus**). The outer surface of the **skull bones** is covered by the **periosteum** and the skin (**corium skin** and **epidermis**). The pia mater (“soft mother”) is a delicate membrane endowed with many **blood vessels** that nourish the brain. The dura mater (“tough mother”) is composed of dense fibrous tissue with a periosteal layer close to the inner surface of the skull. The dura mater, arachnoid mater, and pia mater originate from the **new mesoderm** and are controlled from the cerebral medulla. The **periosteal nerves** covering the periosteum of the dura mater are controlled from the **pre-motor sensory cortex**; the control center is located close to the brain relays of the **pharyngeal ducts** and **thyroid ducts** at the front of the cortex.

Meningitis

Conventional medicine argues that inflammations of the meninges are the result of “**infections**” with **viruses**, **bacteria**, or **fungi** that allegedly migrate via the bloodstream to the brain and spinal cord. Any such claim is highly questionable because the blood-brain barrier that separates the circulating blood from the cerebrospinal fluid allows only water, lipid-soluble substances, and molecules (glucose and amino acids) into the brain. This strictly **excludes** the entry of microbes that are supposedly transmitted to humans by “infected” ticks leading to meningoencephalitis, an inflammation of the meninges and the brain (see also **Lyme disease**-associated meningitis). Moreover, the cerebrospinal fluid that occupies the subarachnoid space isolates the meninges well from the circulatory system. This means that under no circumstances are bacteria able to reach the meninges via the bloodstream. The assertion that bacterial meningitis is “highly contagious” is therefore unfounded.

NOTE: Within the brain, the **pituitary gland**, **pineal gland**, and **choroid pexus** receive the blood supply directly from the cerebral arteries. This allows **TB bacteria** to assist healing.

The only way bacteria find their way into the central nervous system is when the spinal cord gets punctured. During the puncture a hollow needle is inserted into the subarachnoid space to collect cerebrospinal fluid. In today’s medicine, a lumbar puncture, colloquially called a spinal tap, is a common diagnostic procedure to confirm or exclude meningitis.

