



ON WITH LIFE

BRAIN INJURY + STROKE + NEURO

Student Handbook



ON WITH LIFE

BRAIN INJURY + STROKE + NEURO

Welcome to On With Life!

We are pleased to have you join this wonderful organization and as a student intern! On With Life is a very special organization which is centered on our mission:

“Joining hands, hearts, and minds to help persons living with brain injury get “On With Life!”

On With Life was started by a small group of families and survivors who came together in the early 1980's to support each other. By this time, many individuals began to survive moderate to severe traumatic brain injury, but there were no specialty services outside a hospital setting dedicated to meeting their unique needs. What began as a dream soon became reality for these eight families in 1987. Our name comes from one of the survivors, a 28-year old motocross racer, who kept saying “I just want to get on with my life.”

From this humble beginning, On With Life has grown into four separate corporations with over 200 staff members. We have served over 2,500 individuals and continue to expand our continuum to meet the wide-ranging, lifelong needs of persons living and aging with brain injury. Our current services include: Post-Acute Inpatient Rehabilitation, Long-Term Skilled Care, Supported Community Living, Outpatient Neuro Rehabilitation, Neuropsychology Evaluation and Consultation, and The Apartments at OWL Creek/Independent Living.

This handbook is intended to provide you with some brief information about our philosophy, brain injury and treatment, learning objectives, and general policies.



ON WITH LIFE
BRAIN INJURY + STROKE + NEURO



Few can do what we do

On With Life began as the dream of a dedicated and passionate group of survivors and their families, faced with the challenge of rebuilding lives shattered by brain injury. They envisioned a program that would provide rehabilitation services to persons living with brain injury.

Since opening in 1991, On With Life has served more than 5,000 individuals and their families through our continuum of specialty services. Our extensive rehabilitation services, combined with specialized expertise in neuro rehabilitation, make On With Life a world-class rehabilitation program.

On With Life is now the only freestanding inpatient rehabilitation program in the world accredited by CARF as a comprehensive inpatient rehabilitation program for children and adults for both brain injury and stroke specialty. This accreditation decision represents the highest level of accreditation that can be awarded to a rehabilitation organization and shows On With Life's substantial efforts in the areas of patient-centered care, superior outcomes and interdisciplinary care.

85

**CERTIFIED
BRAIN INJURY
SPECIALISTS** on staff

99

On With Life has served
all **99 COUNTIES IN
IOWA**, 25 other states
and 15 other countries

97%

**SATISFACTION
RATE**

INNOVATION CENTERS



Brain Injury



Stroke



Concussion



Parkinson's



Complex Neuro

PROGRAMS

- + Post-Acute Inpatient Neuro Rehabilitation
- + Outpatient Neuro Rehabilitation
- + Long-Term Skilled Care
- + Residential Neuro Rehabilitation
- + Supported Community Living
- + Neuropsychological Services
- + Independent Living

POST-ACUTE INPATIENT NEURO REHABILITATION — On With Life's Post-Acute Inpatient Neuro Rehabilitation program is a 28-bed program that provides intense therapy to those that have sustained a traumatic brain injury, stroke, tumor, loss of oxygen or other neurological condition. Individuals participating in our intensive rehabilitation program, including those in a minimally responsive state, receive an average of 4.5 hours of therapy a day and 24-hour skilled nursing services are provided at one of the strongest ratio of nursing hours per person served in Iowa. Our inpatient program has served more than 1,500 individuals with complex cognitive, sensory and medical needs. After participating in this comprehensive specialty program, the majority of persons served return to their homes and communities.



OUTPATIENT NEURO REHABILITATION — On With Life's Outpatient Neuro Rehabilitation program has a comprehensive team of specialists dedicated to returning brain injury survivors to the activities, passions, roles and talents that define them as an individual. Our team of Certified Brain Injury Specialists includes physical therapists, occupational therapists, speech pathologists and neuropsychologists. Our CARF accredited program provides therapy for those that have sustained a neurological injury such as a traumatic brain injury, stroke or brain tumor; complex concussion; or those living with a neurological condition such as Parkinson's disease.



LONG-TERM SKILLED CARE — In 1996, On With Life's Long-Term Skilled Care program opened in Glenwood, Iowa. Our 32-bed facility is Iowa's only skilled care program specifically designed for youth and younger adults with brain injury or other neurological disorders. A unique program which provides 24-hour skilled nursing care and a variety of therapeutic interventions using an on-site therapy gym, state-of-the-art sensory stimulation center, therapeutic pool and a sensory garden.



RESIDENTIAL NEURO REHABILITATION — Our five-bedroom residential home, located in Des Moines, is focused on working with individuals who have sustained a brain injury as they learn strategies to support their return home and to their communities. The rehabilitation team focuses on promoting the overall health of the person served, community integration, independent living skill-building and managing neurobehavioral challenges.



SUPPORTED COMMUNITY LIVING — On With Life's Supported Community Living program was created to provide specialized support to allow individuals who have experienced a brain injury or other neurological impairment to maintain and improve their independence. Our services are provided by a staff experienced in brain injury rehabilitation who focus on activities of daily living, budgeting, organizational skills, personal advocacy and community integration training and collaborate with persons served, family members and external case managers to maximize survivors' strengths. Services are provided to individuals in their homes in Central Iowa.



NEUROPSYCHOLOGICAL SERVICES — On With Life offers neuropsychological evaluation and consultation services on an outpatient basis for people living with a brain injury or other central nervous system condition. David Demarest, Ph.D., and Allison Logemann, PsyD, use scientific techniques to determine pre-existing characteristics of the individual and provide an overview of the extent and type of changes brought about by the injury or condition. Our neuropsychologists work with people of all ages with neuro-related conditions, including traumatic or acquired brain injury, stroke, spinal cord injury, Alzheimer's and other dementias, progressive neuromuscular conditions, and children or adolescents with neurodevelopmental disorders.



INDEPENDENT LIVING — Our 14 ranch-style apartments were designed for persons who experience long-term disability following a brain injury, qualify for HUD subsidized rent and are able to live independently. Located on our Ankeny campus with plenty of green space and its own community center, this complex is designed to promote socialization and community integration in everyday activities.

ANKENY CAMPUS
715 SW ANKENY ROAD
ANKENY, IA 50023-9798
P. (515) 289-9600
F. (515) 964-0567



GLENWOOD CAMPUS
714 LACEY STREET, SUITE 100
GLENWOOD, IA 51534-1946
P. (712)-525-1294
F. (712)-525-1509

CORALVILLE CAMPUS
2854 CORAL COURT, SUITE 1
CORALVILLE, IA 52241
P. (319)-259-6224

Student Objectives

- Gain knowledge on acquired brain injury (traumatic as well as onset, CVA's, anoxic brain injuries, etc.)
- Gain experience treating persons served in both programs: Rehab and Disorders of Consciousness
- Complete appropriate interventions based on clinical findings in efficient and effective manner
- Observe and/or complete evaluations (initial, discharge, and throughout length of stay).
- Develop appropriate care plans based on determined length of stay
- Complete daily, weekly, and monthly documentation in an efficient and concise manner
- Attend and/or report at monthly conferences and rounds
- Gain experience working with vendors (wheelchair, orthotic, etc.)
- Gain experience working with other clinicians (physical therapy, speech therapy, occupational therapy, recreation therapy, music therapy, psychology, social work, nursing).
- Have the opportunity to attend other learning venues (inservices, aquatic therapy, swallow study, etc.)

On With Life's Rehabilitative Treatment for Brain Injury

The families of both traumatic brain injury and acquired brain injury (stroke, tumors, infections, etc) victims often have many questions when their loved one is transferred to a rehabilitation center.

What happens in rehabilitation?

Similar to an acute care hospital, the persons served at On With Life will be cared for by a team of professionals who specialize in the treatment of persons with brain injury.

Initial goals are to:

1. Stabilize the medical and rehabilitation issues related to brain injury and the other injuries.
2. Prevent secondary complications. Complications could include pressure sores, pneumonia, and contractures.
3. Restore lost functional abilities. Functional changes could include limited ability to move, use the bathroom, talk, eat, and think.
4. Provide adaptive devices or strategies to enhance functional independence.
5. Analyze what changes might be required when the person goes home and/or if the individual will be able to safely transition home with the family and the person served.

The person served will participate in therapy each day. Initially, the person served may require staff assistance for even the simplest activities, such as brushing teeth, getting out of bed, and eating. The person served may require staff assistance for safety because there is a risk of falling, eloping (trying to get out of the facility to go home), or getting hurt. The person served may be confused and forgetful.

The Rehabilitation Team

At On With Life, we have two medical directors, an Internal Medicine physician who oversees medical care, and a Psychiatrist who is the team leader for the therapy program. The General Medical Director is responsible for managing the complex medical needs of the person as well as addressing prevention. Psychiatrists treat a wide range of problems including the changes after brain injury. The psychiatrist will assess and prescribe the treatment and direct the team.

The neuropsychologist is a key member of our rehabilitation team. The neuropsychologist will assess the patient's changes in thinking and behavior which could include:

- Poor memory
- Poor attention and concentration
- Poor decision-making
- Impulsivity
- Disorientation
- Language and communication abilities
- Inability to speak
- Inability to understand when spoken to

Many persons served are unaware of the changes in the brain and how those changes affect their daily lives. A person served may not understand what has happened and may be distraught by being away from home. Through education and counseling, our neuropsychologist can help the person served and the person's served family cope with the changes impacting their lives.

Our Rehabilitation Nurses assist the person served with brain injury in attaining optimal health, the highest quality of life, and adapting to an altered lifestyle. The Rehabilitation Nurse provides care for the person served, the family/support system, and the nursing unit with focus on:

- Education
- Health maintenance
- Nutrition
- Potential for aspiration
- Impaired skin integrity
- Bowel and bladder incontinence
- Impaired physical mobility
- Chronic and acute pain
- Impaired or limited ability to take care of self
- Sleep pattern disturbance
- Impaired cognition
- Impaired verbal communication and comprehension
- Sexual dysfunction
- Other medical needs

Specially trained Certified Nursing Assistants also provide direct care to our persons served under the supervision of the Rehabilitation Nurses.

Our Physical Therapists work with persons served to increase their functional mobility, whether that is in bed, in their wheelchair, or by walking, to help them achieve as much independence as possible. Physical therapists are experts in the examination and treatment of musculoskeletal and neuromuscular problems that affect the ability to move and function in daily life.

Physical Therapists will address skills related to:

- Positioning
- Posture
- Balance
- Strength
- Quality of movement
- Spontaneous movement
- Coordination of movement
- Increased sensation of sensory-motor activities
- Pain management
- Functional mobility
- Need for wheelchair, brace, or cane

Our Occupational Therapists work with persons served to assess functions and potential complications related to the movement of upper extremities, daily living skills, cognition, vision, and perception.

The Occupational Therapist will address skills related to:

- Splinting
- Positioning
- Visual skills
- Grooming/hygiene
- Bathing
- Dressing
- Cooking
- Grocery shopping
- Banking
- Budgeting
- Readiness for returning to work by assessing prevocational and vocational skills
- Need for assistive devices

Our Speech and Language Pathologists work with persons served to assess their communication, cognition (thinking skills), and swallowing function. The goal is to improve these functional skills to the level that allows for the highest level of independence that is possible.

The Speech and Language Pathologists will address skills related to:

- Communication
 - Auditory comprehension
 - Expressive language
 - Reading and writing
 - Pragmatics
 - Speech production
- Cognition
 - Attention
 - Memory
 - Executive functioning
- Swallowing

Our Music Therapist works with persons served to assist in increasing their overall functions and assists with:

- Physical Development
 - Movement
 - Strength
 - Coordination
- Social Development
 - Expression
 - Vocabulary
- Melodic Voice Intonation
- Cognitive Development
 - Memory
 - Sequencing
 - Reading
 - Organization
- Emotional Development
 - Expression of emotion
 - Self Image
 - Relaxation

Our Recreational Therapists develop activities to target the individual's long-term goals and maximize his/her ability to restore lifestyle interests.

- Physical Development
 - Movement
 - Strength
 - Coordination
- Emotional Development
 - Expression of emotion
 - Self Image
 - Relaxation
- Social Development
 - Expression
 - Social interactions
- Cognitive Development
 - Memory
 - Sequencing
 - Reading
 - Organization
- Leisure Skills Development

Our Dietician assesses the nutritional needs of each person served to maintain:

- Safe swallowing
- Maximize nutritional status
- Nutritional/medical needs

Our Social Workers assess the psychological, social, financial, and support needs of each person served and:

- Provide counseling/support
- Explore resource options
- Develop a support network
- Coordinates discharge planning/options

The Case Manager monitors and coordinates the rehabilitation plan of care, which includes addressing critical issues, overseeing the discharge plan, and communicating with the payer.

The Chaplain arranges for clergy visits, provides spiritual support, and provides regularly scheduled services. As part of On With Life's holistic approach to rehabilitation.

An abstract graphic design featuring three blue circles of varying sizes and three thin blue lines. One large circle is at the top center, a smaller one is below it, and another large circle is at the bottom right. The lines connect the top-left and top-right corners to the top circle, and the top-right corner to the bottom-right circle.

BRAIN INJURY 101

WHY DO WE NEED TO TALK ABOUT BRAIN INJURY?

Traumatic Brain Injury is the leading cause of disability and death among children and young adults in the United States.

Data from the Iowa Department of Public Health indicates that over 5000 Iowans per year are hospitalized with brain injury.

Since the 1970s, medical treatment and transport has created an ever increasing group of “survivors.”

Every 15 seconds there is an incidence of brain injury.

WHAT IS BRAIN INJURY?

Iowa Administrative Code 441-83.81 (249A) makes the following definition:

“Brain injury” means clinically evident damage to the brain resulting directly or indirectly from trauma, infection, anoxia, vascular lesions or tumor of the brain, not primarily related to degenerative or aging processes, which temporarily or permanently impairs a person’s physical, cognitive, or behavioral functions.

WHAT ARE THE COMMON MYTHS ABOUT BRAIN INJURY?

Most people with a very severe brain injury will likely die early.

Brain damage is permanent and irreversible. Life after brain injury is not worth living.

People with brain injury are volatile, aggressive, and unpredictable.

People with brain injury experience dramatic losses in intellectual functioning.

Most brain injuries occur among people who were drinking and driving.

The point of impact and force of a brain injury tells us a great deal about its consequences.

Whatever recovery occurs will happen in the first 12 months.

Recovery begins after coma, continues at an upward pace, and slows down and levels off.

A “miracle” of recovery will occur only if the family finds the right doctor or program.

Average IQ on psychological assessment indicates that the person is cognitively recovered.

Persons with brain injury who demonstrate dissatisfaction with their lives, have unclear goals, have failing relationships, or exhibit disordered lifestyles will find relief in and need psychotherapy.

SOME BRAINY FACTS

The brain regulates and controls almost every bodily function.

Fifteen percent (15%) of the total blood flow in the body is to the brain.

The brain uses twenty percent (20%) of the body's oxygen.

There are approximately 100 billion neurons in the brain. The interconnections are infinite.

Two percent (2%) of the body's weight is the brain.

WHAT PROTECTS THE BRAIN?

The skull bones make up the **cranium**.

Meninges are the membranes of the brain.

Dura Mater is the outer membrane which is thick and strong.

Arachnoid is the middle membrane and appears as a cobweb.

Pia Mater is the inner membrane next to the brain.

Spaces between the meninges:

Epidural Space is between the dura mater and the skull.

Subdural Space is between the dura mater and arachnoid. It contains venous drainage.

Subarachnoid Space is the between the arachnoid and the pia mater. It contains the blood flow in to the brain.

Cerebral Spinal Fluid protects and cushions the brain.

WHAT ARE THE STRUCTURES OF THE BRAIN?

Cerebellum

- Handles coordination and integration of voluntary movements
- Maintains balance and equilibrium of the body
- Injuries to this area can cause problems with coordination, sequencing, shakiness, balance, and can cause someone to walk as though they were drunk

Brain Stem

Pons—Transmits impulses between spinal cord and higher cerebral cluster.

Medulla Oblongata—handles heart, respiratory, and other reflex actions such as cough and swallowing.

Cerebrum

- Divided into the right and left hemispheres
- Contralateral Control—the left side of the brain controls the right side of the body and vice versa.

TWO MAJOR TYPES OF BRAIN INJURY

Traumatic Brain Injury

Traumatic Brain Injury (TBI) is the result of a sudden, physical assault to the brain or anoxia.

Acquired Brain Injury

Acquired brain injury is the result of insidious infection, vascular lesions, or tumors of the brain not primarily related to degenerative or aging processes.

TRAUMATIC BRAIN INJURY

Traumatic Brain Injury differs from other types of brain injury in the following:

- It happens *suddenly* brings a significant change *immediately*.
- Damage is usual *diffuse and widespread*, not confined to one area of the brain. Thus, there are multiple effects.

TYPES OF TRAUMATIC BRAIN INJURY

Open Head Injury

The brain is penetrated from outside, i.e., a bullet wound.

Closed Head Injury

The brain is damaged within the head, without external penetration.

TYPES OF CLOSED HEAD INJURIES

Diffuse

Widespread damage results from the stretching and tearing of nerve fibers. When the brain mass twists and shifts, billions of thread-like nerve connections are pulled and stretched. Some actually snap and never function again. Some that are stretched may recover, but others degenerate and finally fall apart.

Concussive

This is a brief loss of consciousness following a blow to the head. The brain mass collides with the sharp ridges inside the skull. As it bounces off hard bone, it is torn and bruised. Contusions (bruises) are most likely to occur at the tops and base of the frontal and temporal lobes.

Coup/Contrecoup

If the head is struck in a particular way, the skull may bend in, bruising the brain, then driving the brain mass against the opposite wall of the skull so that brain tissue on the other side is bruised as well.

Hematomas

Heavy bleeding (hemorrhage) or slow leakage of blood from the blood vessel inside the brain. This causes an accumulation of blood called a hematoma.

Increased Intracranial Pressure

A build up of pressure within the skull which can compromise delicate brain tissues and lead to further brain injury.

Seizures

5-10% of all persons with a brain injury will have seizures soon after a brain injury or even years later.

Coma

A prolonged state of unconsciousness in which the patient is unresponsive and unaware of surroundings or has minimal response.

IDENTIFYING A POSSIBLE BRAIN INJURY—SOME CLUES

Verbal Issues

Poor speech

Monotone

Vulgarity/swearing

Talks too loud or too soft

Difficulty finding words

Broken speech

Personality Issues

Denies deficits

Irritable

Egotistical

Doesn't listen

Asks a lot of questions

Argumentative

Manipulative

Appears unmotivated

Moody-laughs or cries easily

Depressed

Face shows little/no emotion

Appears angry

Social Issues

Doesn't recognize "personal space"

Inappropriate social interaction

(overly formal or overly friendly)

Interrupts conversations

Poor eye contact

Inappropriate conversation

(sex, drugs, alcohol abuse)

Fabricates stories/lies

Goes off on tangents

Behavioral Issues

Wanders off/runs away

Impulsive (acts without thinking)

Repeated invasion of personal space

Short fuse

Unable to control angry outbursts

Thinking Issues

Easily distracted

Seems to "space out"

Difficulty understanding

Difficulty with reality

Seems confused

Poor memory

Decreased safety awareness

Slow to answer questions

Difficulty organizing time

DENIAL VS. UNAWARENESS

Denial

A reluctance (either conscious or unconscious) to recognize deficits based upon psychological factors.

Unawareness

An inability to recognize deficits caused by neurological injury

TYPES OF AWARENESS DEFICITS

Intellectual Awareness

The cognitive capacity a person to understand that a particular skill is diminished from premorbid levels.

Some degree needed for higher levels of awareness.

Emergent Awareness

The ability of a person to recognize a problem when it is actually occurring.

Anticipatory Awareness

The ability to anticipate that a problem is going to happen because of some deficit.

FACILITATION OF AWARENESS

Intellectual Awareness

Facilitated through repetitive education of both the person served and family

Emphasis on explaining deficit areas and explaining what function implications could be

Provide feedback when deficit area is affecting performance

Video taping is a common and effective method

Feedback needs to be immediate, concrete, and objective

Trusting relationship is important context for effective feedback

Emergent Awareness

Facilitate by providing feedback to recognize when problems are occurring

Use consistent terminology and be specific and concise

Give specific, observable signs of how the problem is affecting the person served

Cues may begin generally and, if needed, increase in specificity

Videotaping is helpful, especially of group activities

Anticipatory Awareness

Guide consumers into planning for deficits prior to starting task

Feedback is needed; experience of natural consequences of one's actions may be helpful

Experience in variety of situations must be experienced to learn from mistakes

BRAIN INJURY INTERVENTION STUDIES

Persons served often have other types of problems before the injury such as drug or alcohol abuse.

Rapid entry in to a rehabilitation facility increases the likelihood of an optimum recovery.

The most rapid recovery occurs in the first six months. This is largely due to the brain's ability to heal. However, significant recovery continues beyond one year. Long-term treatment and follow-up is important to develop compensatory skills and maximizing independence.

Physical problems decrease over time during rehabilitation, but psychological complications can increase.

Factors that predict outcomes for brain injured persons do not necessarily predict accurately for individuals.

Many persons who were living with non-family members returned to living with their families during the first year after injury.

Family reactions are critical to successful rehabilitation. Family education and intervention help significantly.

Frequency of Problems

Most Frequent Problems:

Sexual issues
Role-change issues

Least Frequent Problems:

Child care
Intrafamilial relationships
Household task sharing

Other problems:

Communication
Leisure time
Withdrawal/socialization
Dependency

Each problem was mentioned as a significant one by at least 20% of consumers. The number of problems mentioned was related to family attitudes toward the situation.

Psychological distress of consumers and families was found to be more limiting than the physical impairment, yet psychological services are often not available.

Major long-term rehabilitation needs:

Follow-up services
Availability of social activities
Effective models for coordination by service providers

Services needed by persons served are often unavailable in the community.

Education of both professionals and family members is critical.

INTERACTIONAL CONSIDERATIONS

Model consistent, calm, and controlled behavior

Attempt to modulate stress in the environment

Allow the person time for mourning or readjusting his/her self-concept.

Use cues relevant to the person's best cognitive or sensory modalities—i.e., beware of language use when working with persons with verbal deficits

Continually accentuate gains for positive reinforcement; ALWAYS seek out and emphasize assets, not just limitations

When involved in confrontational situations reframe and offer immediate options

If possible, attempt to teach skills ancillary to successful employment (e.g. conversational skills, punctuality) in more than one setting (i.e. counselor's office and then give the person a similar "homework" assignment to do in the community)

Expect the unexpected

Remember: Support + Skills = ***SUCCESS***

Think ecologically~ Person in the Environment

FACILITATING COMMUNICATION

Ask specific questions in concrete terms that describe areas of strength as well as deficits in functional terms.

Provide feedback on performance in small amounts at regular intervals. Invite family members to staffings whenever possible.

For the uninvolved families, mail brief written reports if they fail to respond to your phone calls.

Allow time for information to be processed and assimilated. Repeat explanations if necessary.

Elicit the consumer and family's input and agreement as to what evaluations measure.

Be specific when giving feedback regarding performance or behavior; describe appropriate behavior or expected performance.

DEVELOPING REALISTIC GOALS

Allow a “fair hearing” of unrealistic goals.

Take a “wait and see” attitude; do not dismiss what appears to be an unrealistic goal out of hand.

Focus person served and family initially on the intermediate goal of putting together a picture of strengths and weaknesses.

If necessary, allow yourself several interviews to develop a complete picture of the person served and their support system.

Try to involve the family in observation/data collection.

Use work trials; help your vendor to be specific in data collection.

Describe work goals as intermediate until performance for the desired goal can be achieved.

Expect backsliding. Refocus person served and family back to the intermediate goal, emphasizing progress made towards this goal.

At different times, you may spend more time talking to the family than the person served.

Start early to identify long-term supports needed for job retention. Elicit person served and family input.

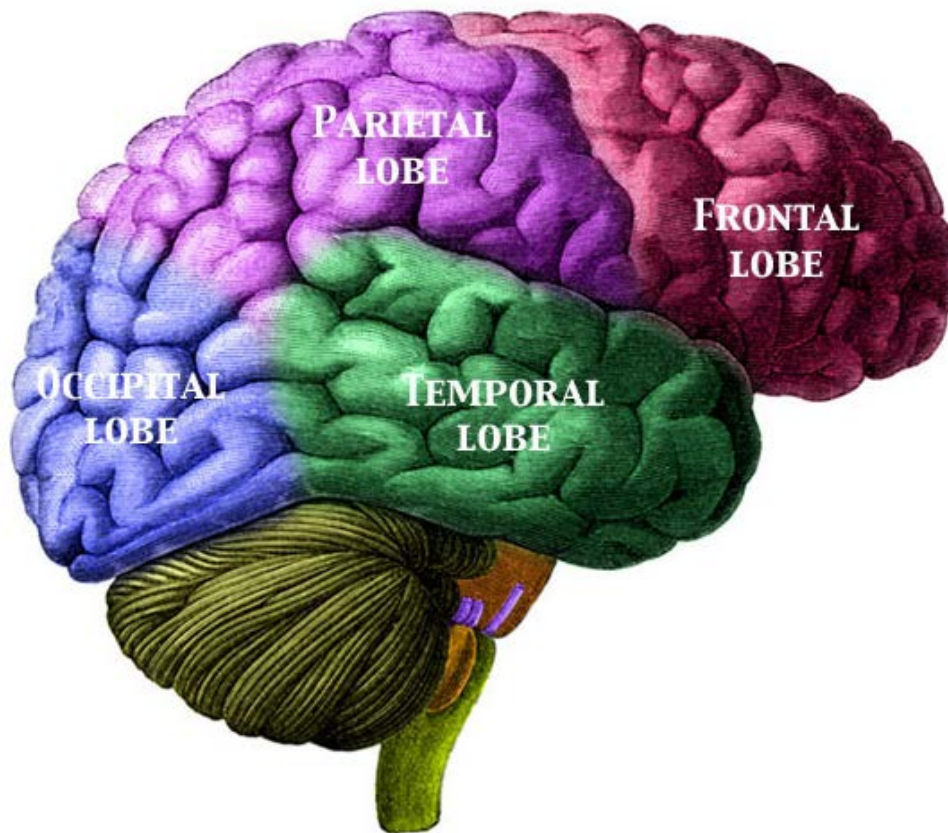
COGNITIVE SKILLS AND FUNCTIONS ASSOCIATED WITH THE 4 LOBES OF THE BRAIN

PARIETAL LOBE

Tactile Perception (touch)
Awareness of Spatial Relationships
Academic Skills (reading

FRONTAL

Controlling Attention
Motivation
Emotional Control
Guide/Control Social
Behavior
Judgement
Problem Solving
Decision Making
Expressive Language
Motor Integration
Voluntary Movement



TEMPORAL

Memory
Receptive Language
Comprehension of Language
Musical Awareness
Sequencing Skills

OCCIPITAL

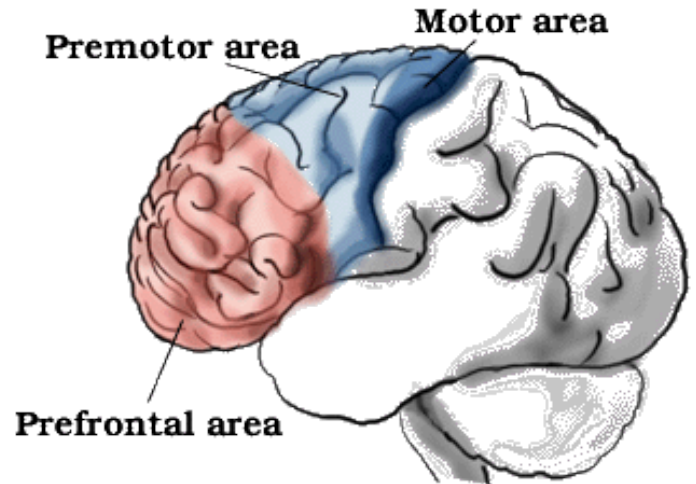
Visual Perception
Visual Input
Reading (perception and recognition of printed words)

FRONTAL LOBE

The **Frontal Lobe** is the executor of the brain. It links and integrates all components of behavior at the highest level.

Functions:

- How we know what we are doing within our environment (Consciousness), initiate activity in response to our environment
- Judgments we make about what occurs in our daily activities
- Controls our emotional response and expressive language
- Assigns meaning to the words we choose. Involves word associations
- Memory for habits and motor activities



Observed Problems:

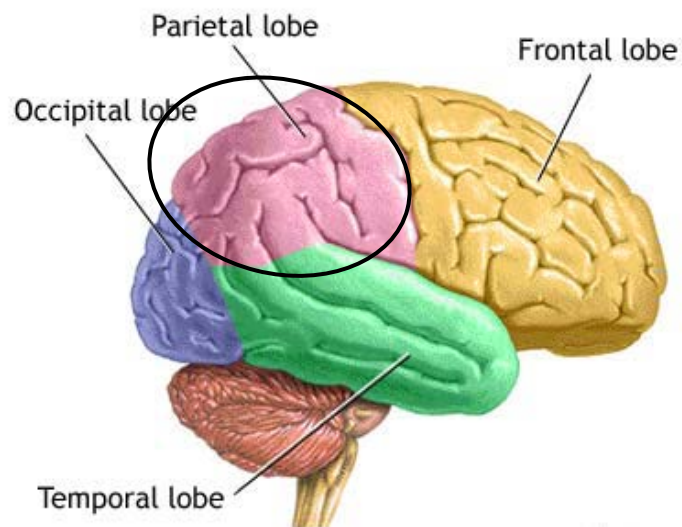
- Loss of simple movement of various body parts (Paralysis).
- Inability to plan a sequence of complex movements needed to complete multi-stepped tasks, such as making coffee (Sequencing)
- Loss of spontaneity in interacting with others
- Loss of flexibility in thinking
- Persistence of a single thought (Perseveration)
- Inability to focus on task (Attending)
- Mood changes (Emotionally Labile)
- Changes in social behavior
- Changes in personality
- Difficulty with problem solving
- Inability to express language (Broca's Aphasia)

PARIETAL LOBE

The **Parietal Lobe** is largely responsible for construction ability and language. It interprets sensory signals received from other areas of the brain such as vision, hearing, motor, and memory.

Functions:

- Location for visual attention, touch perception, goal directed voluntary movements, and manipulation of objects.
- Integration of different senses that allows for understanding a single concept.



Observed Problems:

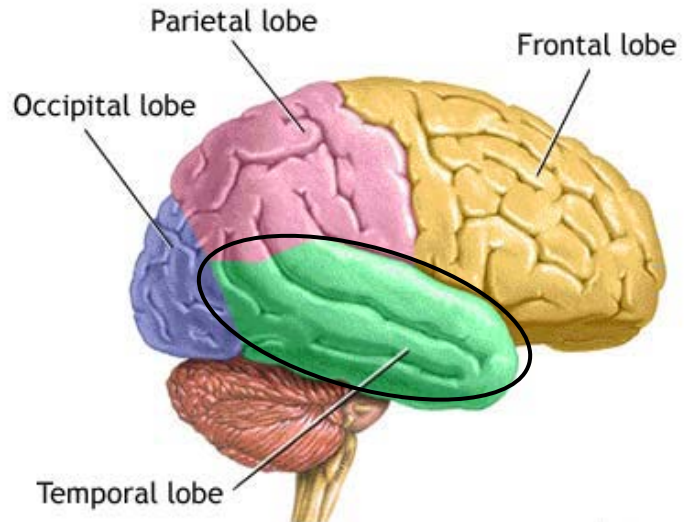
- Inability to attend to more than one object at a time, name an object (Anomia), locate the words for writing (Agraphia).
- Problems with reading (Alexia)
- Difficulty with drawing objects
- Difficulty in distinguishing left from right
- Difficulty with doing mathematics (Dyscalculia)
- Lack of awareness of certain body parts and/or surrounding space (Apraxia) that leads to difficulties in self-care.
- Inability to focus visual attention.
- Difficulties with eye and hand coordination.

TEMPORAL LOBE

The **Temporal Lobe** is associated with verbal processing, memory retrieval, and auditory processing.

Functions:

- Hearing ability
- Memory acquisition
- Some visual perceptions
- Categorization of objects

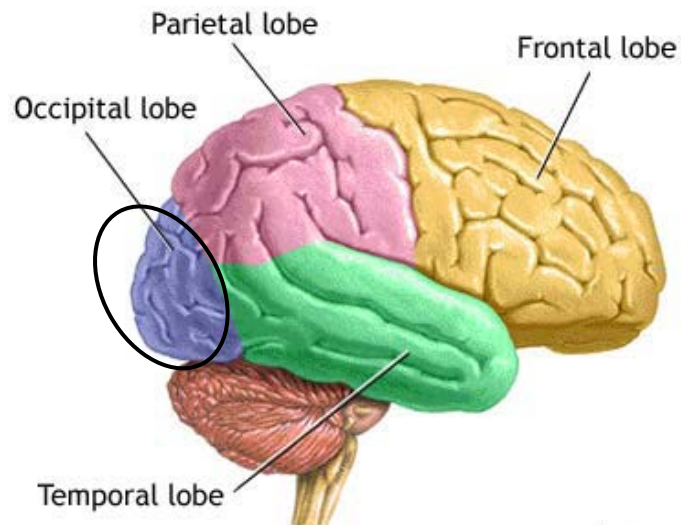


Observed Problems:

- Difficulty in recognizing faces (Prosopagnosia)
- Difficulty in understanding spoken words (Wernicke's Aphasia)
- Disturbance with selective attention to what we see and hear
- Difficulty with identification of, and verbalization about objects
- Short-term memory loss
- Interference with long-term memory
- Increased or decreased interest in sexual behavior
- Inability to categorize objects (Categorization)
- Right lobe damage can cause persistent talking
- Increased aggressive behavior

OCCIPITAL LOBE

The **Occipital Lobe** is the primary visual reception area and enables us to interpret visual images.



Functions:

- Vision

Observed Problems:

- Defects in vision (Visual Field Cuts)
- Difficulty with locating objects in environment
- Difficulty with identifying colors (Color Agnosia)
- Production of hallucinations
- Visual illusions - inaccurately seeing objects
- Word blindness - inability to recognize words
- Difficulty in recognizing drawn objects
- Inability to recognize the movement of an object (Movement Agnosia)
- Difficulties with reading and writing.

CEREBELLUM

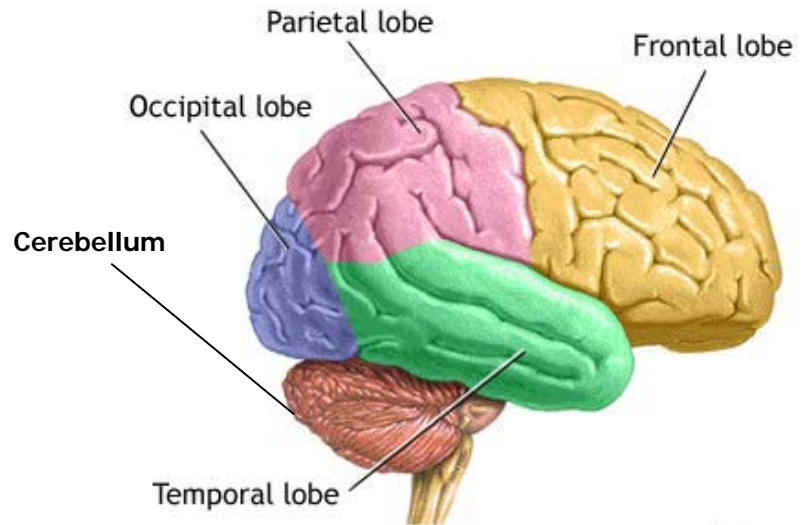
The **Cerebellum** is the second largest part of the brain. It is located at the back of the brain beneath the occipital lobes.

Functions:

- Coordination of voluntary movement
- Balance and equilibrium
- Some memory for reflex motor acts.

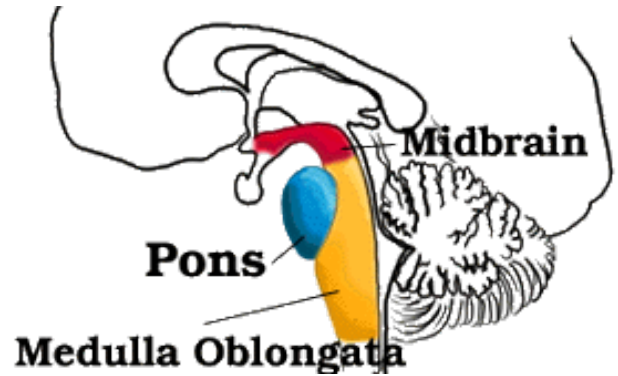
Observed Problems:

- Loss of ability to coordinate fine movements
- Loss of ability to walk.
- Inability to reach out and grab objects
- Tremors. Dizziness (Vertigo)
- Slurred Speech (Scanning Speech)
- Inability to make rapid movements.



BRAINSTEM

The **Brainstem** is the lower extension of the brain where it connects to the spinal cord. Neurological functions located in the brainstem include those necessary for survival (breathing, digestion, heart rate, blood pressure) and for arousal (being awake and alert). It contains three parts, the midbrain, pons, and the medulla oblongata.



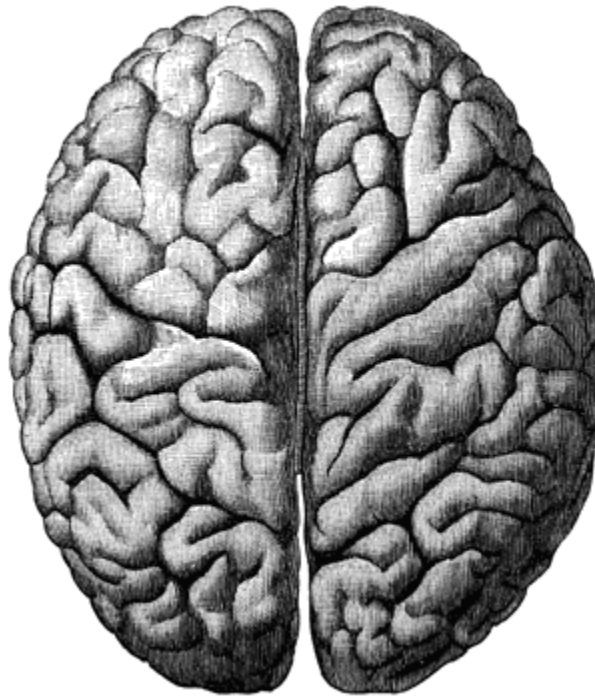
Functions:

- Breathing
- Heart Rate
- Swallowing
- Reflexes to seeing and hearing (Startle Response).
- Controls sweating, blood pressure, digestion, temperature (Autonomic Nervous System)
- Affects level of alertness
- Ability to sleep
- Sense of balance (Vestibular Function)

Observed Problems:

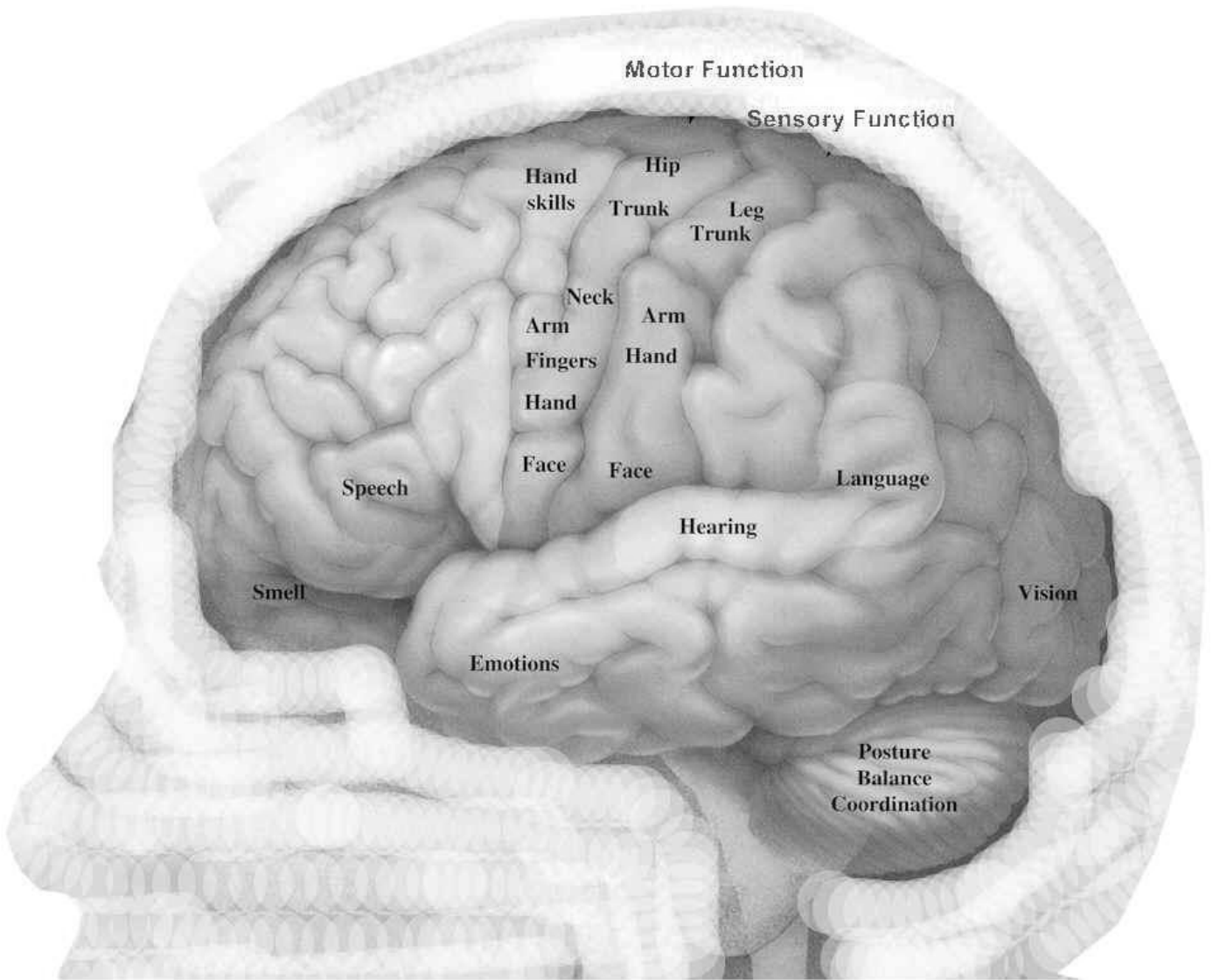
- Decreased vital capacity in breathing, important for speech
- Swallowing food and water (Dysphagia)
- Difficulty with organization/perception of the environment
- Problems with balance and movement
- Dizziness and nausea (Vertigo).
- Sleeping difficulties (Insomnia, sleep apnea)

CEREBRUM

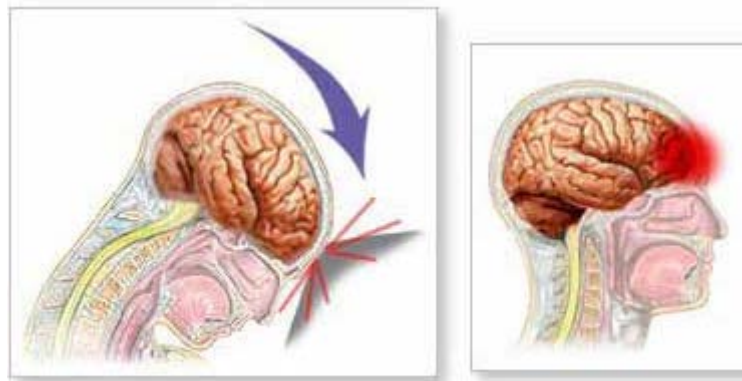


The **Cerebrum** is composed of the left hemisphere and the right hemisphere. Each hemisphere has four lobes consisting of the frontal, temporal, occipital, and parietal. The left hemisphere interprets logically and the right hemisphere processes holistically.

FUNCTIONS AREA OF THE BRAIN

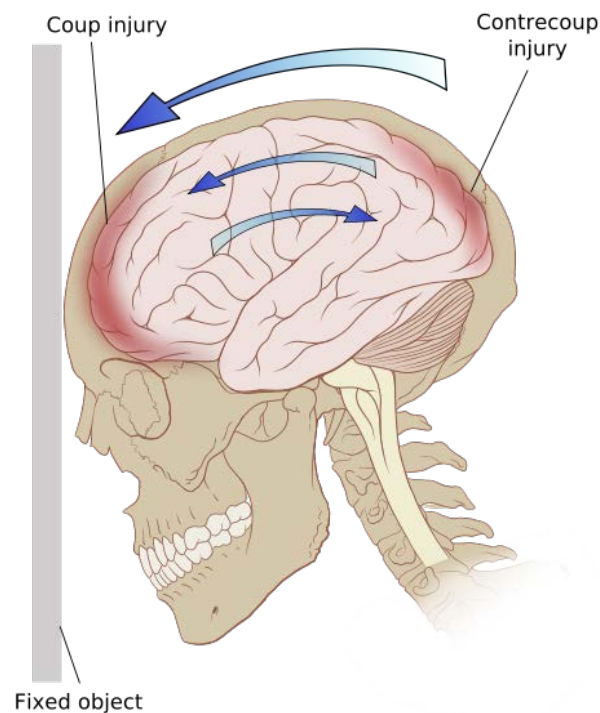


CONCUSSION



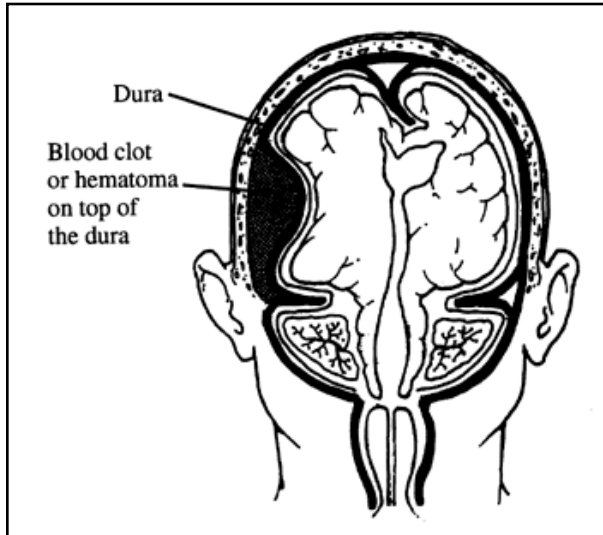
Concussion is a brief loss of consciousness following a blow to the head. The brain mass collides with the sharp ridges inside the skull, bounces off the hard bone, and is torn and bruised. Concussions are most likely to occur at the tops and base of the frontal and temporal lobes.

COUP – CONTRECOUP

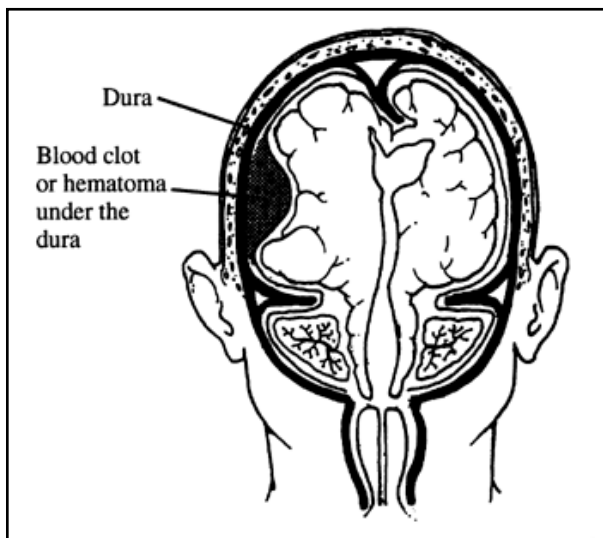


Coup – Contrecoup occurs when the head is struck; the skull may then bend in, bruising the brain. The force of the blow then drives the brain mass against the opposite wall from where the initial blow occurred, bruising that area also.

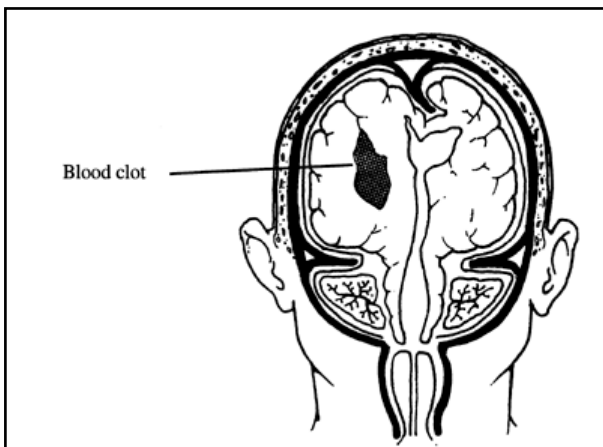
EPIDURAL, SUBDURAL, AND INTRACEREBRAL HEMATOMAS



An **Epidural Hematoma** is a blood clot that forms between the skull and the top lining of the brain (dura). This blood clot can cause fast changes in the pressure inside the brain. Emergency surgery may be needed. The size of the clot will determine if surgery is needed.

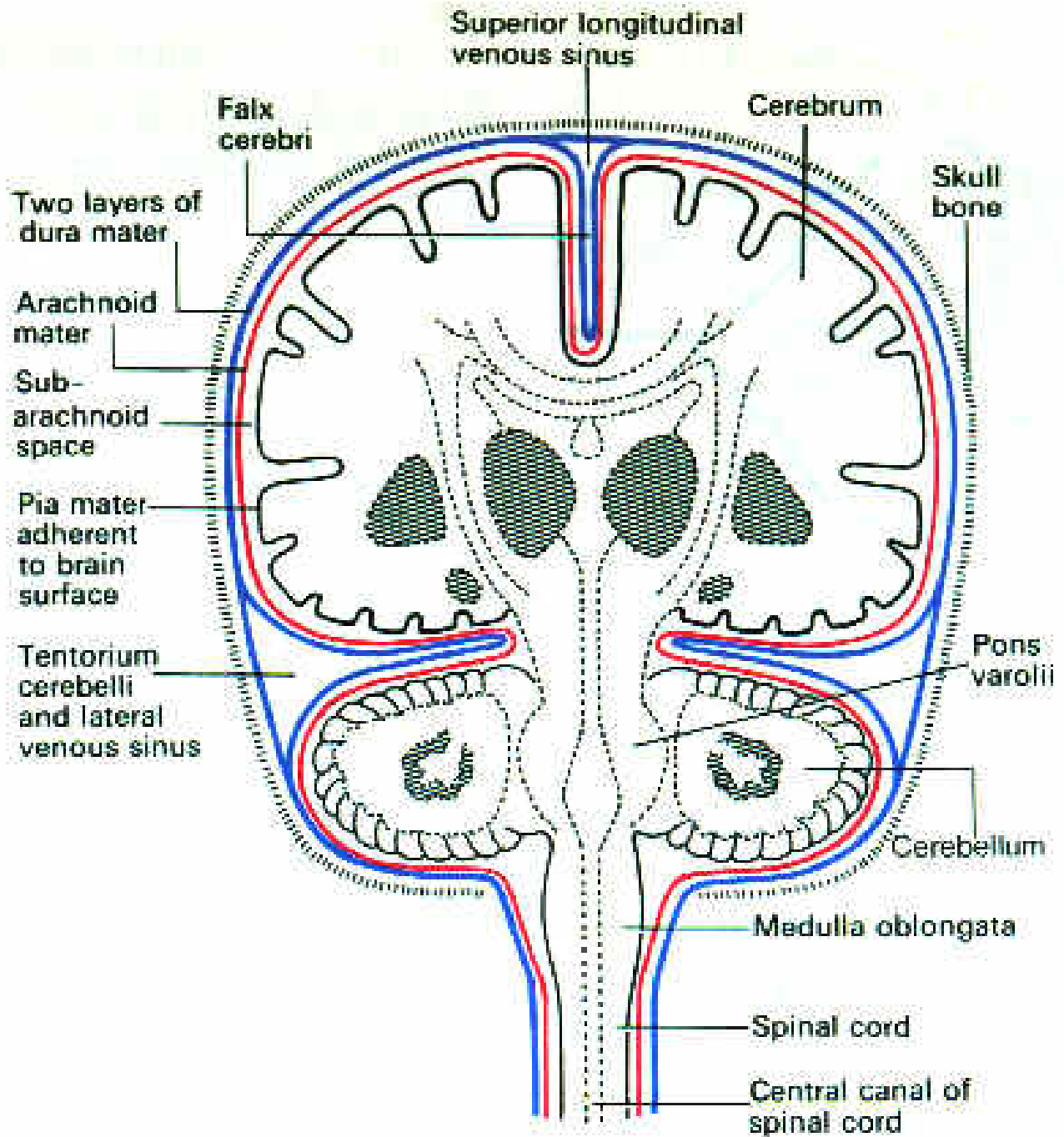


A **Subdural Hematoma** is a blood clot that forms between the dura and the brain tissue. If this bleeding occurs quickly it is called an acute subdural hematoma. If it occurs slowly over several weeks, it is called a chronic subdural hematoma. The clot may cause increased pressure and may need to be removed surgically.

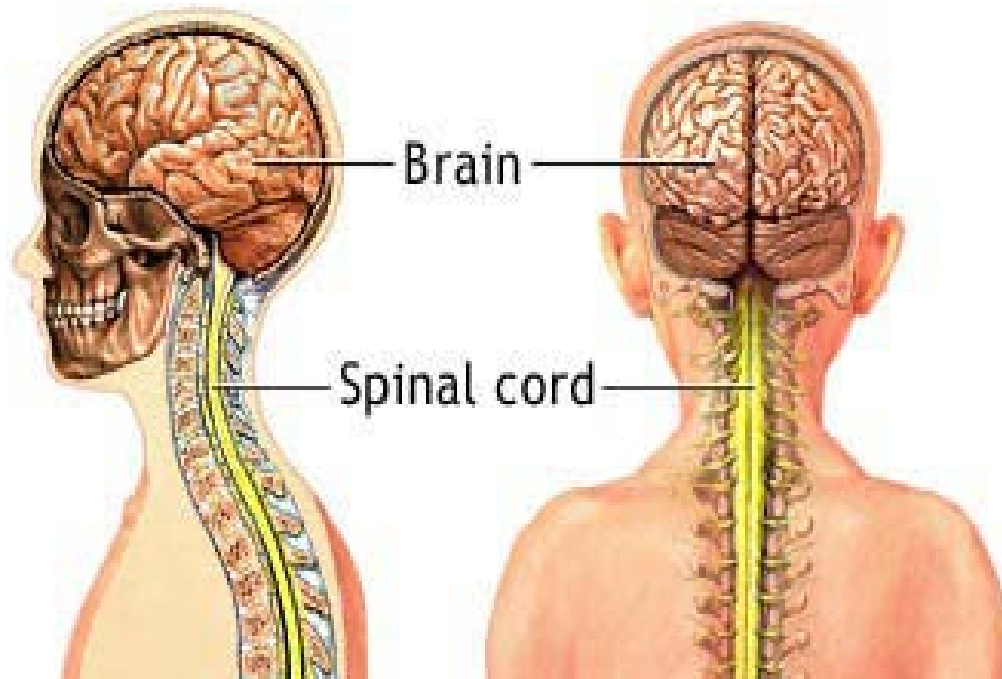


An **Intracerebral Hemorrhage** is a blood clot deep in the middle of the brain that is hard to remove. Pressure from this clot may cause damage to the brain. Surgery may be needed to relieve the pressure.

CORONAL VIEW OF THE HEAD

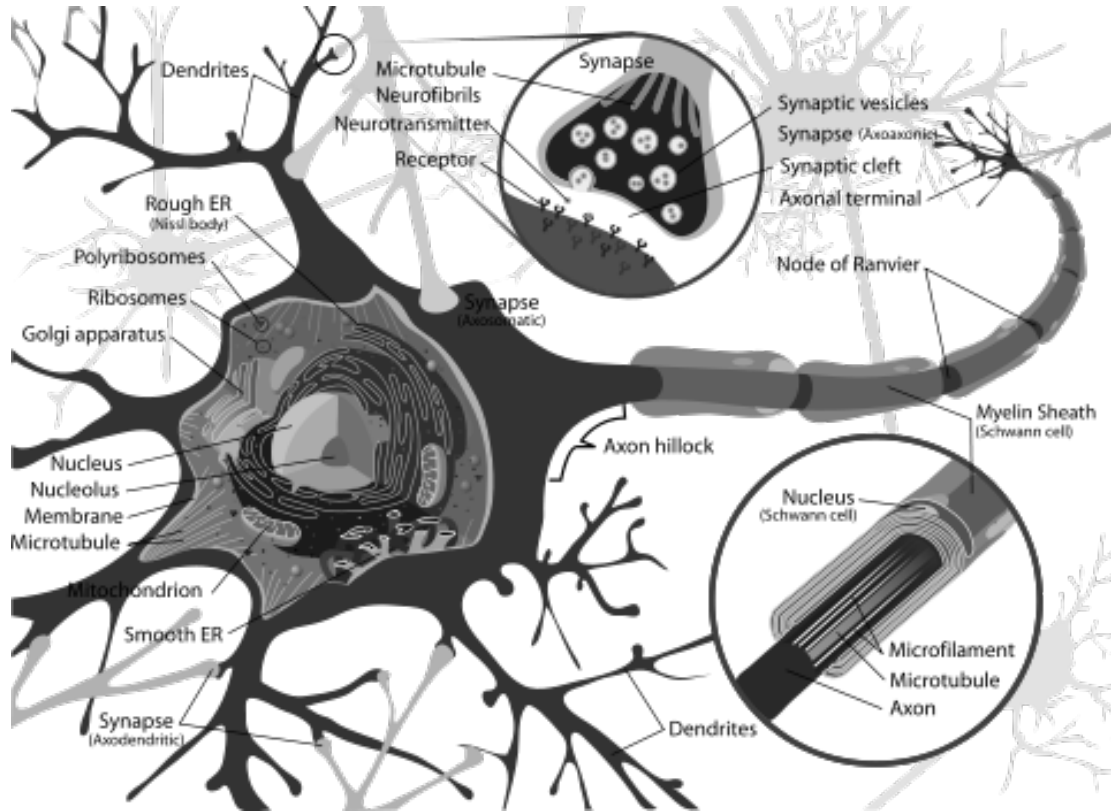


THE BRAIN AND SPINAL CORD



The **Brain** is located at the upper end of the **Spinal Cord**. The brain is a soft, wrinkled mass of nerve tissue floating in the skull. It is encased in layers of protection and cerebral spinal fluid.

NEURAL STRUCTURE





ON WITH LIFE

BRAIN INJURY + STROKE + NEURO