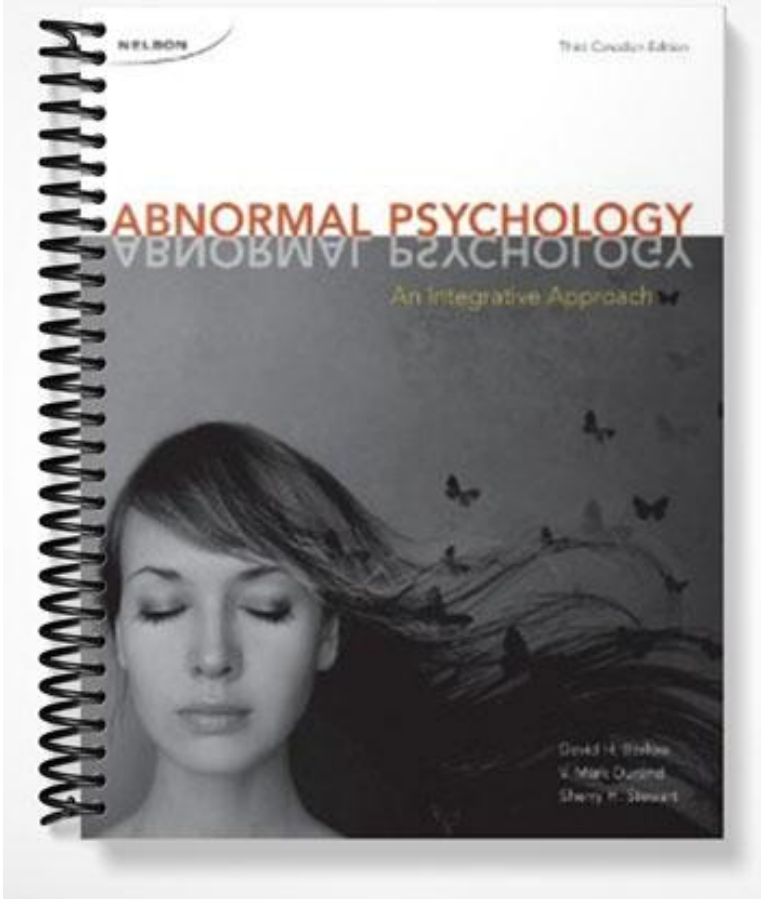
SOLUTIONS MANUAL



CHAPTER 2

AN INTEGRATIVE APPROACH TO PSYCHOPATHOLOGY

STUDENT LEARNING OUTCOMES*

		Textbook Pages	Bloom's Taxonomy
Use the concepts, language, and major theories of the discipline to account for psychological phenomena.	Learning and cognition (APA SLO 1.2.a (1))	pp. 55–60	Higher Order Learning
	Biological bases of behaviour and mental processes, including physiology, sensation, perception, comparative, motivation, and emotion (APA SLO 1.2.a (3))	pp. 35–55, 60–63	Remember
	Developmental changes in behaviour and mental processes across the life span (APA SLO 1.2.a (4))	pp. 66–67	Remember
	The interaction of heredity and environment (APA SLO 1.2.d (1))	pp. 37–41	Higher Order Learning
Use the concepts, language, and major theories of the discipline to account for psychological phenomena.	Integrate theoretical perspectives to produce comprehensive and multifaceted explanations (APA SLO 1.3.e)	pp. 34–35, 66–67	Higher Order Learning
Explain major perspectives of psychology (e.g., behavioural, biological, cognitive, evolutionary, humanistic, psychodynamic, and sociocultural).	Explain major perspectives of psychology (APA SLO 1.4)	pp. 34, 55, 63	Remember

*Portions of this chapter cover learning outcomes suggested by the American Psychological Association (2007) in their guidelines for the undergraduate psychology major. Chapter coverage of these outcomes is identified above by APA Goal and APA Suggested Learning Outcome (SLO).

LECTURE OUTLINE

I. One-Dimensional or Multidimensional Models

A. **One-dimensional models** posit single causes of psychopathology (e.g., it's all conditioning, it's all biology, it's all social or psychological). Note that there are few one-dimensional models in the sense used in the textbook. For instance, even behavioural types rarely (if ever) ascribe to a one-cause model of conditioning; though they will tend to conceptualize most psychopathology as explained by conditioning or learning processes. You can use this to illustrate how one's conceptual system will greatly influence how one goes about explaining psychopathology, and that particularly conceptual systems (e.g., behavioural, cognitive, biological, neurobiological) are quite complex in themselves.

B. **Multi-dimensional models** are systemic and often interdisciplinary, and hold that a system of different reciprocal influences (i.e., biological, cognitive, learning, emotional, social, cultural) interact in complex ways to yield the major etiological and maintaining processes responsible for abnormal behaviour. As such, any biological or environmental influence can become part of this system and cannot be considered in an isolated context. Consider the causes of Judy's phobia, or another case example of your choosing, in the context of a multi-dimensional vs. unidimensional framework.

II. Genetic Contributions to Psychopathology

A. **Gregor Mendel's** work in the 19th century initially demonstrated that our physical characteristics are largely determined by genetic endowment. Examples include hair and eye color. With respect to mental disorder, genetic influences are predominant in some cases (e.g., Huntington's disease and PKU).

B. The Nature of Genes

1. **Genes** are long molecules of **deoxyribonucleic acid** (**DNA**) that are located at various **chromosomal** sites within the cell nucleus. Problems sometimes develop when the normal contingent of 46 human chromosomes (arranged in 23 pairs) is disturbed (an example is **Down's syndrome** or trisomy 21, where a person inherits an extra chromosome on the 21st pair).
2. The DNA molecular structure of genes is referred to as a **double helix** or spiral ladder. The first 22 pairs of chromosomes program development of body and brain and the last pair, called the sex chromosomes, determines sex phenotype. A **defective gene** results if something is wrong with respect to the ordering of DNA molecules on the double helix. A **dominant gene** is one of the pair of genes that determine a particular trait and the effect can be quite noticeable. A **recessive gene**, by contrast, must be paired with another recessive gene to determine a trait.
3. Genes seldom determine our physical development in any absolute way and the same is true for psychopathology. Much of human development and behaviour is **polygenic** (i.e., influences by many genes that individually exert a tiny effect). Because of this, scientists look for patterns of influence across genes using a procedure called **quantitative genetics**.
4. Molecular genetics focuses on examining the actual structure of genes with increasingly advanced technologies such as DNA microarrays. These technologies allow scientists to analyze thousands of genes and identify broad networks that may be contributing to a particular trait.

C. New Developments in the Study of Genes and Behaviour

1. The best estimate for genetic contribution to enduring personality traits and cognitive abilities in humans is about 50%. With respect

to psychological disorders, genetic influences seem to account for less than half the etiological explanation; however, **no individual genes** have been identified relating to any major psychological disorders.

2. More important questions now are how genetic and environmental factors interact to influence the development, maintenance, and treatment of psychological disorders.
3. It has also become clear that adverse life events such as a "chaotic" childhood can overwhelm the influence of genes.

D. The Interaction of Genetic and Environmental Effects

1. An example of gene-environment interaction was proposed by **Eric Kandel**, who stated that the process of learning may change the genetic structure of cells. This may occur when environmental processes turn on dormant genes and changes in the brain's biochemical functioning. This view lends support to the notion that we are less hardwired than previously thought.

2. **The diathesis-stress model**
    a. According to this model of gene-environment interaction, persons inherit from multiple genes tendencies to express certain traits or behaviours (diathesis), which may then be activated under certain environmental events such as stress. Examples include blood-injury-injection phobia and alcoholism. The diathesis or vulnerability does *not* necessarily lead to a disorder unless some specific life event occurs.
    b. A person with a large diathesis would, according to this model, require a smaller amount of stress for a disorder to develop compared to someone with a relatively smaller diathesis to begin with.

3. **Reciprocal gene-environment model**
    a. This model states that persons are believed to have a genetically determined tendency to create the very environmental risk factors that trigger genetic vulnerabilities.
    b. Such a model may be used to explain depression, divorce, and personality characteristics such as impulsivity.
4. **Epigenetics and the Non-genomic inheritance** of behaviour
    a. Related to research suggesting that there has been an overemphasis on the role of genetic influence on personality, temperament, and their contribution to the development of psychological disorders. Examples include research on genetically identical mice (including rats and rhesus monkeys using cross fostering strategies) reared in identical environments, but perform and behave quite differently on several experimental tasks above what genes would suggest.
    b. The moral is that it is even too simplistic to say that the genetic contributions to personality traits or psychopathology is 50%; one must consider the heritable contribution in the context of an individual's past and present environment.
    c. Epigenetics: It seems that genes are turned on and off by cellular material that is located just outside of the genome ("epi" as in the epigenetics means on- or- around) and that stress, nutrition and other factors can affect this epigenome which is then immediately passed down to the next generation and maybe for several generations.

III. Neuroscience and its Contributions to Psychopathology

A. The field of **neuroscience** focuses on understanding the role of the nervous system in disease and behaviour. Knowing how the nervous system and particularly the brain works is central to understanding behaviour, emotion, and cognitive processes.

B. The **central nervous system** (**CNS**)

1. Consists of the **brain** and **spinal cord** and processes all information received from our sense organs and reacts as necessary.
2. **Neurons** control every thought and action, the brain contains an average of 140 billion neurons.
    a. The typical neuron contains a central cell body with two different kinds of branches. One set of branches, **dendrites**, extend from the cell body to receive chemical messages from other nerve cells which are converted into electrical impulses. The other branch, the **axon**, transmits these impulses to other neurons. Any one nerve cell is linked with multiple others.
    b. Neurons themselves operate electrically, but communicate with other neurons chemically. The **synaptic cleft** is a small space that exists between the axon of one neuron and the dendrites of another. It is here where neurons communicate with one another via release of neurotransmitters from dendrites of other neurons.
    c. **Neurotransmitters** are the chemicals released from one nerve cell to another across the synaptic cleft. After a neurotransmitter is released it is quickly drawn back from the synaptic cleft into the same neuron via a process known as **reuptake**. Major neurotransmitters implicated in psychopathology include **norepinephrine** (or

noradrenaline), **serotonin**, **dopamine**, and **gamma aminobutyric acid** (GABA).

d. **New neurotransmitters** are frequently discovered and existing neurotransmitters systems must be subdivided into separate classifications. Current estimates suggest that more than 100 different neurotransmitters each with multiple receptors are functioning in various parts of the nervous system.

3. The **brain** is divided into two parts. The lower **brain stem** is the most primitive part and is responsible for most of the automatic functions necessary for survival (e.g., breathing, sleeping, moving). The more advanced brain systems are located in the **forebrain**.
    a. The **hindbrain** is the lowest part of the brainstem, and contains the **medulla**, **pons**, and **cerebellum** (motor coordination). These structures control activities such as breathing, heartbeat, and digestion.
    b. The **midbrain** coordinates movement with sensory input and contains parts of the reticular activating system (RAS). The RAS contributes to arousal, tension, and waking and sleeping.
    c. At the very top of the brain stem (i.e., above the hindbrain) lies the **diencephalon**, which contains the **thalamus** and **hypothalamus**; these structures help transmit information to the forebrain and are integral to behaviour and emotion.
    d. At the very base of the forebrain (just above the thalamus and hypothalamus) is the **telencephalon**, containing the **limbic system**. Limbic means "border," and this system figures prominently in much of psychopathology. It includes the following structures: **hippocampus (sea horse)**, **cingulate gyrus (girdle)**, **septum (partition)**, and **amygdala (almond)**. Emotional expression, impulse

control, sex, aggression, hunger, and thirst are controlled by this part of the brain. Another area at the base of the forebrain is the **basal ganglia**, including the **caudate (tailed) nucleus**. Motor behaviour is controlled by this area, and damage can cause twitching or shaking.

e. The largest part of the forebrain is the **cerebral cortex** which contains over 80% of the neurons in the CNS. Reasoning and creative skills are derived from this brain area. The cerebral cortex is divided into two near-symmetrical hemispheres: the left hemisphere appears to be responsible for verbal and cognitive processes, whereas the right hemisphere appears more responsible for spatial abilities.

f. Each hemisphere of the cerebral cortex consists of four separate areas of lobes. The **temporal lobe** is associated with the recognition of sights and sounds and long-term memory storage. The **parietal lobe** is associated with touch recognition. The **occipital lobe** integrates visual input. The **frontal lobe** is most interesting from the standpoint of psychopathology and is largely responsible for thinking and reasoning abilities, memory; it enables one to relate to people and events in the world and to behave as social animals.

C. **Peripheral nervous system:** Works in coordination with the brain stem to ensure proper bodily functioning and consists of the (1) **somatic nervous system**, which controls muscles and movement, and (2) **autonomic nervous system** (**ANS**), which is divided into the **sympathetic** and **parasympathetic nervous systems**. The ANS regulates the cardiovascular system, endocrine system (e.g., pituitary, adrenal, thyroid, and gonadal glands) and aids in digestion and

regulation of body temperature.

1. The sympathetic and parasympathetic branches of the ANS operate in a complementary fashion. The **sympathetic** nervous system mobilizes the body (e.g., increases heart rate) during periods of stress or danger and is part of the emergency or alarm response; the **parasympathetic** nervous system renormalizes arousal and facilitates digestion.
2. The **endocrine system** produces its own chemical messengers (i.e., **hormones**) and releases them directly into the bloodstream. **Adrenal glands** produce epinephrine (also called adrenaline) in response to stress, including salt-regulating hormones; the **thyroid** produces thyroxine, which facilitates energy metabolism and growth; the **pituitary** is the master gland that produces several regulatory hormones; and the gonads produce sex hormones (e.g., testosterone and estrogen). The endocrine system is closely related to the immune system and is implicated in anxiety, stress-related, and sexual disorders.
3. The **hypothalamic-pituitary-adrenalcortical axis** (HYPAC axis) illustrates the connection between the nervous and endocrine systems and is implicated in several forms of psychopathology.

D. Neurotransmitters

1. Drug therapies function by either increasing or decreasing the flow of specific neurotransmitters. **Agonists** increase the activity of a neurotransmitter by mimicking its effects. Some drugs, known as **antagonists**, function to inhibit or block the production of neurotransmitter or function indirectly to prevent the chemical from reaching the next neuron by closing or occupying the receptors; other drugs increase production of competing biochemicals that deactivate the neurotransmitter or produce

effects opposite those produced by the neurotransmitter **(inverse agonists)**. Most drugs are either agonistic or antagonistic.

b. Types of neurotransmitters include:
    a. **Serotonin** (5HT) is concentrated in the midbrain and connected to the cortex, thus producing widespread effects on behaviour, mood, and thought processes. Extremely low levels of serotonin are associated with less inhibition, instability, impulsivity, and tendencies to overreact to situations (e.g., aggression, suicide, impulsive overeating, excessive sexual behaviour. Tricyclic antidepressants (e.g., imipramine), and new classes of serotonin specific reuptake inhibitors (SSRIs; e.g., Prozac) affect the serotonergic system (see also St. John's-wort).
    b. Two major neurotransmitters affect much of what we do. Each of these substances are in the amino acid category of neurotransmitters. Glutamate is an excitatory transmitter that "turns on" many different neurons, leading to action. A second type of amino acid transmitter is **gamma-aminobutyric acid**, or **GABA.** These "chemical brothers" are fast acting, as they would have to be for the brain to keep up with the many influences from the environment that requires action or restraint.
    c. **Gamma aminobutyric acid (GABA)** reduces postsynaptic activity which, in turn, inhibits several behaviours and emotions, particularly anxiety. **Benzodiazepines**, or mild tranquilizers, make it easier for GABA to attach to specialized receptors. Effect is not specific to anxiety. The benzodiazepine-GABA system reduces overall arousal and tempers anger, hostility, aggression, and possibly excessive anticipation and even positive emotional states.

d. **Norepinephrine** (also known as noradrenaline) is also part of the endocrine system and important in psychopathology. **Catecholamines** are secreted by the adrenal glands and norepinephrine stimulates at least alpha-adrenergic and beta-adrenergic receptors. **Beta-blockers** for hypertension reduce the surge in norepinephrine and keep heart rate and blood pressure down. You may ask students to think about what might happen to someone who over does it when they are taking beta-blockers.

e. **Dopamine (also classified as a catecholamine)** has been implicated in schizophrenia and may act by "switching on" various brain circuits that inhibit or facilitate emotions or behaviour. Reserpine (from Chapter 1) blocks specific dopamine receptors, thus lowering dopamine activity. Dopamine and serotonin circuits cross at many points and seem to balance one another. An agonist for dopamine is L-DOPA, which has been shown to be effective for treating Parkinson's disease by increasing levels of dopamine. Illustrate to students what happens when Parkinson's patients are given too much dopamine – they begin to show signs and symptoms of schizophrenia, whereas when the levels of dopamine are lower to the extreme schizophrenic patients show behaviours associated with Parkinson's disease.

E. Implications for Psychopathology

1. Methods for studying brain images have been applied to psychopathology. For example, persons with obsessive-compulsive disorder show increased activity in the orbital surface of the cerebral cortex, the cingulate gyrus, and to a lesser extent

the caudate nucleus. One of the strongest concentrations of neurotransmitters in these areas is serotonin, which is related to over reactive or compulsive behaviour. Damage to this brain circuit is related to an inability to ignore irrelevant cues, making the organism over reactive.

2. The work of neuroscience is only beginning and one cannot be certain about the relation between the orbital surface and OCD. It is possible that overactivity in this region of the brain is a consequence, not a cause, of OCD.

F. Psychosocial Influences on Brain Structure and Function

1. In addition to potential biological interventions, psychological treatments may be powerful enough to modify brain circuits; for example, the treatment of OCD via exposure and response prevention can result in the normalization of brain function. Also, psychosocial factors may directly affect levels of neurotransmitters (animal studies indicate that certain neurochemical substances have very different effects depending on the psychological histories of the animals). Two examples of psychosocial influences on brain structure and function include: psychosocial dwarfism and cancer.
2. Several recent experiments illustrate the interaction of psychosocial factors and brain function at the level of neurotransmitter activity. Experiments on early effects of controllability over life events in Rhesus monkeys have shown psychosocial factors can exert powerful effects on the action of neurotransmitters over subsequent behaviour. Learning and experience can also affect the structure of neurons, including the number of receptors on a cell and how they respond to subsequent experience. One explanation is that learning and experience

produces more plastic and rich neural connections in the brain, and that such experience can determine vulnerability to psychological disorders later in life

IV. Behavioural and Cognitive Science

A. Conditioning and Cognitive Processes

1. Robert Rescorla and others' experiments indicate that basic classical and operant conditioning paradigms *facilitate* the learning of the relations among events in the environment. This learning involves complex cognitive and emotional processing in humans and lower animals.
2. Martin Seligman described the concept of **learned helplessness**, or the lack of behaviour shown by an organism when it encounters conditions over which no control is possible. People may make certain attributions about their environment when they believe they have little control over stress in their lives. People may become depressed if they decide or think they can do little about the stress in their lives (i.e., attribution of no control), even if others think there is something that could be done.
3. Albert Bandura observed that organisms can learn simply by watching others in their environment (**modeling or observational learning**). This type of learning requires a symbolic integration of the experiences of others with judgments of what might happen to the observer. Bandura also specified the importance of social context in learning and maintained that much of what we learn depends on our interactions with other people around us.
4. **Prepared learning** reflects the recognition that biology and genetics influence what we learn and how readily we do so. This view is based on the observation that we learn to associate fears and phobias with certain types of objects or situations that have

some evolutionary basis in promoting survival (e.g., snakes or spiders. Over the course of evolution certain unconditioned and conditional stimuli become more readily associated for their survival value and this preparedness is passed on via genetics.

B. Cognitive Science and the Unconscious

1. Advances in cognitive science have revolutionized our conceptions of the unconscious. Examples include the concepts of **blind sight** (unconscious vision), dissociation between behaviour and unconsciousness (hypnotism), and **implicit memory** (i.e., acting on the basis of things that have happened in the past but being unable to remember the past events).
2. One method for exploring the unconscious (or black box) is the **Stroop color naming paradigm**, where subjects are shown a variety of words printed in different color inks. Delays in color naming occur when the meaning of the word attracts the subject's attention despite efforts to concentrate on the color of the word.

C. **Cognitive-behavioural therapy (CBT)** refers to the integration of cognitive procedures and behavioural techniques directly into therapy. Among the originators of CBT was Aaron T. Beck, who developed methods for dealing with faulty attributions and attitudes associated with learned helplessness and depression. Albert Ellis' rational-emotive-behaviour therapy is another form of CBT. CBT examine in some detail appropriate and unrealistic thoughts and thinking processes via having the patient monitor their thoughts. Therapy is then directed at elucidating these thoughts and working to develop a different set of attitudes and attributions, as well as changing certain behaviours.

V. Emotions

A. **Emotion** means to elicit or evoke motion (e – *motion*). Excessive or disruptive emotions are often intimately tied with forms of psychopathology.

B. The Physiology and Purpose of Fear

1. The physiologist Walter Cannon speculated that **fear** activates the cardiovascular system, blood vessels constrict, arterial pressure rises while blood flow is decreased to the extremities, breathing becomes faster, increased amounts of sugar are released from the liver into the bloodstream, hearing becomes more acute, digestive activity is suspended, shivering and piloerection also occur.
2. Fear is the subjective feeling of terror, a strong motivation for behaviour (escape or fighting), and a complex physiological arousal response. This fight or flight reaction was fundamentally important in the course of evolution and is very much with us today in normal behaviour and in several forms of psychopathology.

C. Emotional Phenomena

1. Defining emotion is difficult, but most agree that it is an **action tendency** to behave in a certain way that is elicited by an external event, a feeling state, and one accompanied by a possibly characteristic physiological response. Emotions function to ensure that we pass our genes on to subsequent generations.
2. Emotions are usually short-lived, temporary states lasting several minutes to several hours. **Mood** is a more persistent period of affect or emotionality. **Affect** usually refers to the momentary emotional tone that accompanies what we say or do, but can also be used generically to summarize commonalities among emotional states that are characteristic of an individual.

3. Emotion is comprised of three components that are often considered in isolation from the others: behaviour, physiology, and cognition. Walter Cannon viewed emotion as primarily a brain function, whereas Richard S. Lazarus emphasizes the cognitive aspects of emotion. Many theorists believe that the cognitive and emotional systems interact and overlap, but are fundamentally separate.
4. Sustained anger and hostility appear closely related to the development of heart disease. This may occur because the ability of the heart to efficiently pump blood throughout the body drops significantly when one is angry (placing the person at increased risk of disturbances in heart rhythm) but not during stress or exercise.
5. Suppressing almost any kind of emotional response (e.g., anger or fear) increases sympathetic nervous system activity and can even help produce the unwanted emotional state and related thoughts. Emotions affect cognitive processes, and many basic emotions (e.g., fear, anger, sadness or distress, excitement) seem to play a direct role in psychological disorders (e.g., anxiety, depression, mania) and may even define them.

VI. Cultural, Social, and Interpersonal Factors

A. **Cultural factors** influence the form and content of psychopathology and differ among cultures and social groups that may co-exist in close proximity. Voodoo, the evil eye, and other fears represent phenomena that are strongly tied to changes in the social environment.

B. **Gender** exerts a strong and puzzling effect on psychopathology. Females are at higher risk for developing particular kinds of phobias (e.g., insect, small animal phobias) and eating disorders, whereas social phobias affect men and women equally. The difference may

have to do with cultural expectations of men and women and gender roles.

C. The number and frequency of **social relationships** and contacts is strongly related to mortality. Social relationships seem to protect individuals against high blood pressure, depression, alcoholism, arthritis, progression of AIDS, low birth weight in newborns, and susceptibility to catching a cold and infection. Animal studies also indicate that (1) social instability may lead to suppressed immune responses, and (2) biological factors such as drugs can produce different psychological effects depending on social context.

D. Older persons with few meaningful contacts and little social support report high levels of depression and unsatisfactory quality of life. If they became physically ill, they often receive more substantial family support, which serves to re-establish their social bonds and makes life worth living.

E. Psychological disorders carry a substantial **social stigma** in our society.

F. **Interpersonal psychotherapy (IPT)**, developed by Myrna Weissman and her late husband Gerald Klerman, emphasizes the resolution of interpersonal problems and stressors. In this approach, life stressors that precipitate a psychological disorder are identified and the patient and therapist work together on current interpersonal problems that are either the source of the life stress or are intimately connected with it (e.g., interpersonal role dispute, death of loved one, acquiring new relationships, correcting deficits in social skills). IPT is brief, typically 10 to 15 sessions, and is highly effective for persons with problems such as depression.

G. Psychological disorders are **global phenomena**. Approximately 10 – 20% of all primary medical services in poor countries are sought by patients with psychological disorders; record numbers of men are committing suicide in Micronesia; alcoholism levels among adults in Latin America have risen to 20%. Treatments for disorders that are successful in the United States often cannot be administered in countries where mental health services are limited (e.g., China). Social and cultural factors maintain disorders as most societies do not have the means of alleviating and preventing them.

VII. Life-Span Development

A. To completely understand psychopathology, one must appreciate how disorders change with time. Persons are not their disorders and are often not disordered at all times and particularly over time. Just like a fever, clinicians and researchers recognize that a particular behaviour or disorder may have multiple causes.

B. For example, the **principle of equifinality** is used in developmental psychopathology to indicate that there may be a number of paths to a given outcome. These different paths may result from psychological factors that interact with biological components during various stages of development.

KEY CONCEPTS: WHY IS THIS CHAPTER IMPORTANT TO PSYCHOLOGISTS?

This chapter outlines the primary components of a multidimensional model of psychopathology. The multidimensional model considers genetic contributions, the role of the nervous system, behavioural and cognitive processes, emotional influences, social and interpersonal influences, environmental factors, epigenetic, developmental factors in explaining the causes, and even the factors that maintain, psychological disorders. This chapter describes these areas of influence as well as their interaction in producing mental disorder.

STUDENT MOTIVATION

Psychology identifies two basic forms of motivation, intrinsic and extrinsic motivation.

1. The intrinsic learner desires learning new concepts and theories for its inherent interests, for self-fulfillment and satisfaction, enjoyment and to achieve a mastery of the subject. Students who take a genuine interest in embracing their learning are intrinsically motivated.
2. The extrinsic motivation is motivation to perform and succeed for the sake of accomplishing a specific result or outcome. Students who are very grade-oriented are extrinsically motivated.

Motivational Suggestions

- Provide opportunities for student success
- Offer positive feedback
- Assist students in discovering personal meaning and value in their life
- Create a positive learning environment
- Be caring to students as members of a community
- Develop a supportive teaching style

Teaching strategies

- Engage students with current news events
- Connect chapter objectives and content the community, culture, activities and topics relevant to students' educational, personal and professional life.
- Create a Venn diagram of intrinsic and extrinsic motivation.

DISCUSSION QUESTIONS

Discussion questions highlight the ways that the topic is engaging for students. The following questions support chapter content and learning outcomes, generate interest, and encourage students to promptly answer questions. Constructive

feedback acknowledges students for their responses to these questions. The discussion question can be answered individually, as a pair share, small group or class.

1. How does an individual's development, behaviour, personality and IQ make predictions complex?
2. Describe the four components of a **multidimensional integrative approach** to psychopathology. How does each component influence each other? Which one of these components is most influential to psychopathology? Explain your answer.
3. Explain the similarities and difference between the "One Dimensional Model" and the "Multidimensional Model" for psychopathology.
4. How do genes and the environment in the roles of psychopathology and behaviour? How do they impact and affect each other?
5. Adverse life events such as a "chaotic" childhood can overwhelm the influence of genes. What is the reason for an individual's chaotic childhood effect on genes?
6. What role do culture, gender, and social relationships play in the development of psychopathology?

BARRIERS TO LEARNING

1. Strategies for struggling students are teaching students "how to learn". This includes identifying strengths and weaknesses, note taking, mind mapping, outlining material, and read, recite and review for exams.
2. Learning is a social process and learners can develop greater knowledge and skills when working in pairs and groups. Students can participate in pair shares and group presentations.
3. How can the teaching environment accommodate all of the student's learning needs? Difficult topics may need several activities for deeper understanding.
4. Identify difficult content topics and apply them to real life situations, subjective applications, out of class work, newspaper or magazine articles, current topics, news events, and world and global issues.

Questions

- Students read a selection of the course content and come up with their own questions about the material. These questions can be used for a class discussion.

Notes

- Students take notes from a lecture and underline and number the most important points. Students outline the textbook material and underline and number the most important points.

Brainstorming

- Students brainstorm about what they know about the topic
- After reading the textbook, material or lecture students can brainstorm their new knowledge about the topic.

Flash Cards

- Students write down the important points of each chapter on index cards.

Assessments

- Assessing student knowledge and learning about the course content through a quiz or questionnaire.

Graphic Organizers

A graphic organizer is like a map in a one-page form with blank areas for the student to fill in with related ideas and information. Some organizers are specific and others are more general and can be used with many topics. The information on a graphic organizer can be in addition to note taking, flash cards, information on a form or written as a list. Examples of graphic organizers include charts, maps, Venn diagrams and flowcharts.

Learning Styles

Present different learning styles and modalities for the visual, auditory and kinesthetic/tactile learners.

1. **Visual Learner**

   Present visual stimulation, with films, experiments, newspaper articles, note taking, magazines, YouTube, PowerPoint presentations, observing students, classroom demonstrations, creating posters, class presentations, graphic organizers, charts, illustrations, performing a skit.

2. **Auditory Learner**

   Listen and hear the information with lectures, reading aloud, conversational pair shares, and small group and class discussions. Students read the course material and discuss it with a partner. Students create their own questions about the course content and share it with a partner or class discussion.

3. **Kinesthetic/ Tactile Learners**

   Whole body involvement is needed to process information through group activities, note taking, create a Venn diagrams, create their own texts representations as a drawing or text of the course content, outlining, creating poster boards of charts and graphs.

Identifying common misconceptions or difficult topics helps instructors to address them explicitly, in lectures, through out-of-class work, and with in-class activities. (Where the textbook takes on these misconceptions or helps to parse out difficult concepts, there will be reference to particular pages or features in the book).

CLASSROOM ACTIVITIES, DEMONSTRATIONS AND LECTURE TOPICS

Exercise 1: Nature vs. Nurture: Can and Should We Genetically Engineer Mental Health?

Key Terms: *Nature and Nurture, Periodicals*

Geneticists have shown that cloning is possible and many researchers are scrambling to be the first to clone a human being. Cloning itself raises a host of ethical, legal, moral, and scientific questions. The fundamental premise of cloning

humans is the potential to reproduce a person that would be somehow better off – smarter, stronger, more attractive, and physically and psychologically more healthy – than the uncloned. Another premise behind this move is that genes (i.e., nature) are more important than experience (i.e., nurture). Your textbook authors, however, present a different view.

Outline evidence supporting your position in the context of the following scenario: You are the director of a large behavioural genetics research facility with a federal mandate and blank check to eradicate mental illness in society via genetic engineering. How do you respond? Do you go ahead? How successful will your mission be (assuming you decide to go through with it) in light of what you have read? What is the evidence that this program will achieve its goals of genetically engineering mental health and should it be done? Limit your answer to 3–5 typed double-spaced pages.

Exercise 2: What Does the Amygdala Have to do With Emotion?

Key Terms: *Amygdala (Brain), Periodicals*

The amygdala is a tiny almond shaped brain structure that can pack a wallop when it comes to emotional experience and expression. Describe what is known about its nature and function with regard to emotional experience and expression in normal behaviour and psychopathology. Limit your answer to 3–5 typed double-spaced pages.

Exercise 3: Is Ecstasy the Rave?

Key Terms: *EMdma (Drug), Adverse and Side Effects*

Ecstasy is a synthetic drug that can produce profound effects of behaviour, emotion, and cognition. Describe what is known about how this drug operates at the neurotransmitter level. In your answer also describe the short and long term effects of behaviour, cognition, and emotion. Limit your answer to 3-5 typed double-spaced pages.

CLASSROOM ACTIVITIES, DEMONSTRATIONS, AND LECTURE TOPICS

1. **Activity: Brain Areas & Their Function.** To teach your students neuroanatomy and the contributions of neuroscience to psychopathology, prepare two sets of index cards. On one set you should write the brain structures discussed in the text. The second set of cards should list the functions of these structures. For example, your cards would include:

STRUCTURE	FUNCTION
Central nervous system	Consists of the brain and spinal cord
Medulla and pons	Breathing, pumping of heart, digestion
Cerebellum	Motor coordination
Midbrain	Coordinate movement with sensory input
Reticular activating system	Processes of arousal and tension
Limbic system	Emotional experiences/basic drives of sex, aggression, hunger, and thirst
Caudate nucleus	Controls motor behaviour
Cerebral cortex	Contains over 80% of neurons in the central nervous system
Left hemisphere	Verbal and other cognitive processes
Right hemisphere	Perceiving surrounding events and creating images
Temporal lobe	Recognizing various sights and sounds
Parietal lobe	Recognizing various sensations of touch
Occipital lobe	Integrates various visual input
Frontal lobe	Thinking and reasoning abilities
Peripheral nervous system	Coordination with brain stem to ensure body is working properly
Somatic nervous system	Controls our muscles
Autonomic nervous system	Regulates the cardiovascular system and

STRUCTURE	FUNCTION
	endocrine system
Endocrine system	Releases hormones into the bloodstream
Sympathetic nervous system	Mobilizes body during times of stress
Parasympathetic nervous system	Renormalizes body after arousal states
Pituitary gland	Master or coordinator of endocrine system

The goal of this quick activity is to have students match various structures of the brain with their respective functions. Divide the class in half and distribute one set of index cards to each group of students. Each student should receive one card. Instruct students to find the match for their structure/ function, and tell them to do the activity without talking.

2. **Activity: Eliminating Test Anxiety through Behaviour Therapy**. Eison (1987) has developed a way for students to eliminate their test anxiety with the use of popular behavioural techniques. To eliminate test anxiety through the use of systematic desensitization, allow students to first become familiar with relaxation training; then, while relaxed, ask students to imagine an anxiety-provoking situation involving tests. To demonstrate the effectiveness of rational emotive therapy, ask students to comprise two lists (rational versus irrational) regarding common beliefs about tests (things they say to themselves during exams). Try to encourage students to examine each belief critically; soon they should be able to realize why many fears regarding tests are irrational. *Source Information.* Eison, J.A. (1987) Using systematic desensitization and rational emotive therapy to treat test anxiety. Activities handbook for the teaching of psychology, vol. 2. Washington, DC: American Psychological Association.

3. **Activity: Mental Illness in Social Context: Being Sane in Insane Places**. In 1973 sociologist David Rosenhan sought to examine how difficult it would be for people to shed the "mentally ill" label. He was particularly interested in how psychiatric hospital staff process information about patients. Rosenhan and seven associates had themselves committed to different mental hospitals by complaining that they were hearing voices (a symptom commonly believed to be characteristic of schizophrenia). The staff did not know the "pseudopatients" were actually part of an experiment. Beyond the alleged symptoms and falsification of names and occupations, the important events of the pseudopatients' life histories were factually presented to hospital staff as they had occurred. The pseudopatients were instructed to act completely normal upon admission into the hospital. In fact, Rosenhan told them that acting normal was the only way they could get out. Despite the fact that they did nothing out of the ordinary, the pseudopatients remained hospitalized for an average of 19 days (range 9 to 52 days). Ironically, their sanity was not detected by hospital staff, but it was detected by the actual patients in the hospitals. All of Rosenhan's associates retained the deviant label even after being discharged. Their schizophrenia was said to be "in remission," implying that it was dormant and could possibly resurface. At no time during their stay in the hospital was the legitimacy of their schizophrenic label questioned. It was simply assumed that they were schizophrenic, and everything the pseudopatients did and said while in the mental institutions was understood from this premise. Normal behaviours were overlooked entirely or were profoundly misinterpreted. Minor disagreements became deep-seated indicators of emotional instability. Boredom was interpreted as nervousness or anxiety. Even the act of writing on a notepad was seen by the staff as a sign of some deeper psychological disturbance. Furthermore, even though there was nothing "pathological" about the pseudopatients' past histories, these records were reinterpreted to be consistent with the schizophrenic label. Rosenhan concluded that the staff were doing their jobs as designed and made no conscious effort to misconstrue the evidence. The moral is that psychiatric labels are so powerful that they can profoundly affect

the way information is processed and perceived. Had the same behaviours been observed in a different context, they no doubt would have been interpreted in an entirely different fashion. You may use this study and others like it to discuss the role of context in influencing our interpretations of abnormal behaviour. Alternatively, this is a great springboard for discussion about the stigma of mental illness, and even the dangers of one-dimensional models. You may also ask students if they can come up with other behaviours that would have been misinterpreted in this situation.

Source Information. Rosenhan, D. (1973). On being sane in insane places. Science, 179, 250-258.

4. **Activity: The Ubiquity of Emotion & Conditioning.** Conditioning is so ubiquitous in everyday experience that it is often hard to see. Have students come up with examples of classically conditioned emotional/evaluative responses and use such examples to illustrate that most conditioning is quite adaptive. If students have trouble coming up with examples, you may start with conditioned taste aversions, objects or events that students fear, or words/images that elicit an emotional response (e.g., fear, anger, disgust; seeing flashing blue lights in your rear-view mirror and getting caught for speeding while driving on the highway). Have students talk about the dimensions that are involved in the conditioned responses in keeping with the text description of emotion as involving cognition, behaviour, and physiology. As a trick, you may ask students whether they have ever felt that an exam they had taken was unfair. Don't ask for a show of hands. Most students will raise their hands. You can then ask, "Why did you all raise your hands?" Use this example to illustrate the role of experience and socialization in learning and behaviour (in this case, automatically raising one's hand in response to a question in the classroom without being asked to do so).

5. **Activity: Susan Mineka's Work on Vicarious Learning of Fear in Primates.** Susan Mineka and her colleagues have performed some interesting experiments

demonstrating vicarious learning of fear in lab-reared monkeys. Her work to date represents the most compelling evidence for observational learning of fear. Many students find the description of her classic studies interesting in itself.

6. **Activity: Create Two or Three Characters with Psychopathologies** Divide the class into groups. Each will create character, with a different psychopathology. Each group will draw the physical characteristics of this person OR add a psychopathology f to the characters from Chapter 1. Each group will answer the following questions. What is the psychopathology of each character? What is the cause and source of the pathology? What specific behaviours does each character/ individual display as a result of the specific psychopathology? Each team will share their character with the class.

REFLECTIONS ON TEACHING: HOW CAN I ASSESS MY OWN PERFORMANCE?

1. Did my academic performance measure the quality of student learning?

2. How did my instructional performance improve in this class? What instructional strategies were successful in the presentation of objectives and chapter content, student participation and quality feedback?

3. What strategic teaching methods and activities enhanced student engagement?

4. Which ones did not engage student learning and participation?

5. What methods of constructive feedback to measure student progress and evaluation were most successful?

6. What higher levels of thinking activities enhanced student learning? How did students critically answer questions?

7. Was expertise and experience integrated into the course lectures and discussions?

8. How did constructive feedback to enhance student learning? Which helped student performance the most? Least?

9. Which group/ classroom activities worked? Which ones did not?

10. Which methods of feedback assisted the students learning process and progress?

SUPPLEMENTARY READING MATERIAL FOR CHAPTER 2

Barber, C (2008). The brain: a mindless obsession: despite stunning advances in neuroscience and bold claims of revelations from new brain-scan technologies, our knowledge about the brain's role in human behaviour is still primitive. The Wilson Quarterly, Winter 2008, v32 i1, p.32(13).

Blows, W. T. (2000). Neurotransmitters of the brain: Serotonin, noradrenaline (norepinephrine), and dopamine. Journal of Neuroscience Nursing, 32, 234-238.

Carroll, V. S. (2008). Through the looking glass—our past, our present, and, perhaps, our future. (Then & Now). Journal of Neuroscience Nursing, 40, i1, p5(2).

Damasio, A. R. (1995). Descartes' error: Emotion, reason, and the human brain. New York: Avon Books.

Ellis, A., & Harper, R. A. (1976). A guide to rational living. North Hollywood, CA: Wilshire Book Company.

Gross, C. G. (1998). Brain, vision, memory: Tales in the history of neuroscience. Cambridge: MIT Press.

Hundert, E. (1991). A synthetic approach to psychiatry's nature-nurture debate. Integrative Psychiatry, 7, 76-83.

Kihlstrom, J. F. (1987). The cognitive unconscious. Science, 237, 1445-1452.

Marshall, L. H., & Magoun, H. W . (Eds) (1998). Discoveries in the human brain: Neuroscience prehistory, brain structure, and function. Totowa, NJ: Humana Press.

Mineka, S., Davidson, M., Cook, M., & Keir, R. (1984). Observational conditioning of snake fear in rhesus monkeys. Journal of Abnormal Psychology, 93, 355-372.

Radford, B. (1999). The ten-percent myth (people's use of only 10% of their brains). Skeptical Inquirer, 23, 1-3.

Ramachandran, V. S., & Blakeslee, S. (1998). Phantoms in the brain: Probing the histories of the human mind. New York: William Morrow & Company.

Sacks, O. (1985). The man who mistook his wife for a hat and other clinical tales. New York: Summit Books.

SUPPLEMENTARY VIDEO RESOURCES FOR CHAPTER 2

CNN Today: Abnormal Psychology 2000, vol. 1. (*Available through your Nelson Education Ltd. representative)*. The segment titled "An Integrative Approach to Psychopathology: Emotions and Their Influences on the Body" focuses on the emotion of anger in men and what can be done to alleviate it. A brief mention is also made of depression and how it can impact ones health (e.g. high blood pressure, heart attacks). Presents a view that emotions can be dangerous. (2 min, 5 sec)

Deficits of Mind and Brain. (McDonnell Summer Institute of Cognitive Neuroscience, Eugene, Oregon; *available through your Nelson Education Ltd. representative*). Part one of this videotape provides an overview of neuroimaging techniques and the neuropsychology of cognitive impairments (particularly neglect syndrome) that result from strokes; part two provides a neuropsychological view of schizophrenia. (60 min)

Discovering Psychology: The Responsive Brain. (Annenburg /CPB Collection). Examines the interaction of the brain, behaviour, and the environment. Also shows how brain structure and function are influenced by behavioural and environmental factors. (30 min)

Inside Information: The Brain and How it Works. (Films for the Humanities and Sciences: P.O. Box 2053, Princeton, NJ 08543-2053/ (800)-257-5126). This videotape describes how the many areas of the brain function and includes interviews with researchers in the field of neuroscience. (58 min)

The Brain, Mind, and Behavior. (PBS Video Catalogue, 1-800-344-3337). This series focuses on the nature and function of the human brain, consciousness, and the effects of the brain and hormones on behaviour. (8 parts, 60 min each)

The Enchanted Loom: Processing Sensory Information. (Films for the Humanities and Sciences: P.O. Box 2053, Princeton, NJ 08543-2053/ (800)-257-5126). Discusses how the brain is capable of sorting through vast sensory information and interpreting it on the basis of past experience and expectations. (60 min)

The Human Brain. (Insight Media: 2162 Broadway, New York, NY 10024/ (800)-233-9910). Investigators discuss how the brain's abilities can be enhanced through the proper environmental. Also presents the case of a man who improves his condition after a serious brain injury. (25 min)

The Mind. (PBS Video Catalogue, 1-800-344-3337). This PBS series focuses on mental development in the context of normal and abnormal development.

The Nervous System. (Insight Media: 2162 Broadway, New York, NY 10024/ (800)-233-9910). Explores the function of neurons as well as the central, peripheral and autonomic nervous systems. (25 min)

INTERNET RESOURCES FOR CHAPTER 2

Albert Bandura

http://www.ship.edu/~cgboeree/bandura.html

A web page devoted to the man who discovered observational learning and modeling therapy.

Behaviour Genetics

http://www.ornl.gov/sci/techresources/Human_Genome/elsi/behavior.shtml

Biochemistry of Neurotransmitters

http://themedicalbiochemistrypage.org/

This site describes the nature and function of several neurotransmitters.

Cognitive Science

http://plato.stanford.edu/entries/cognitive-science/

This entry in the Stanford Encyclopedia of Philosophy contains the history, methods and theoretical concepts used by cognitive science.

Etiology issues

http://www.sparknotes.com/?psychology%20abnormal

An overview of many approaches to psychopathology divided along the lines of the nature/nurture debate.

History of Neuroscience

http://faculty.washington.edu/chudler/hist.html

This site lists some of the most important events that occurred in neuroscience and psychology in chronological order, dating back to 4000 B.C.

Messengers of the Brain

http://bipolar.about.com/cs/neurotrans/l/aa0007_msngrs.htm

This student resource describes how neurotransmitters work with illustrations.

Neuropsychology Central

http://www.neuropsychologycentral.com/

This site offers a primer of neuropsychology including links to other neuropsychology topics and discussion groups.

NIMH NIH

http://www.nimh.nih.gov/

This web site is a must for information related to the brain.

Stroop Test

http://www.snre.umich.edu/eplab/demos/st0/stroopdesc.html

This is an online version of the Stroop test where students can test themselves.

Who uses Psychological services in Canada?

http://www.crhspp.ca/Docs/huns.htm

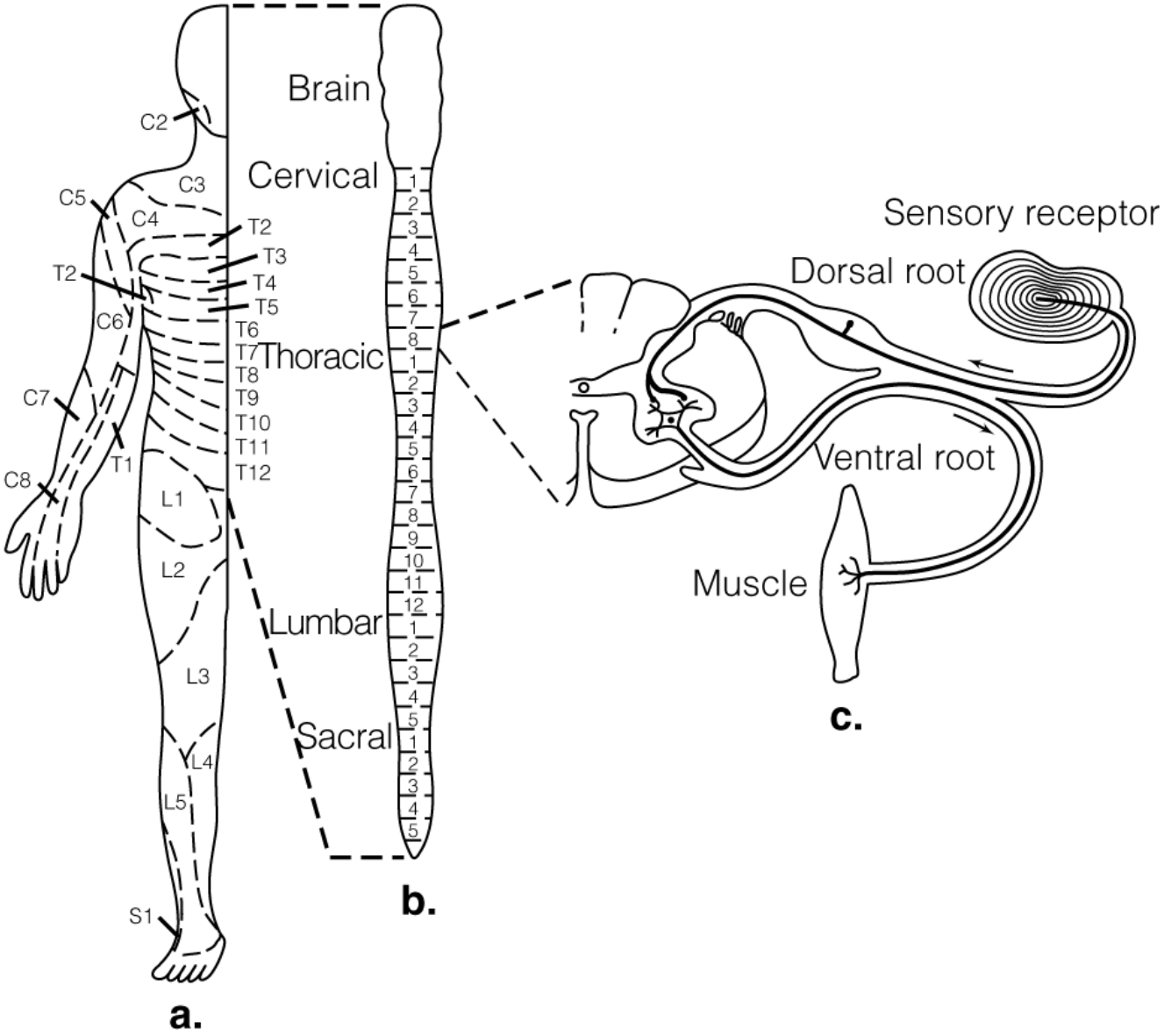
This is an article about John Hunsley's research collected during the National Population Health Survey.

The Whole Brain Atlas

http://www.med.harvard.edu/AANLIB/home.html

This is an excellent site reviewing the structure and function of the human brain.

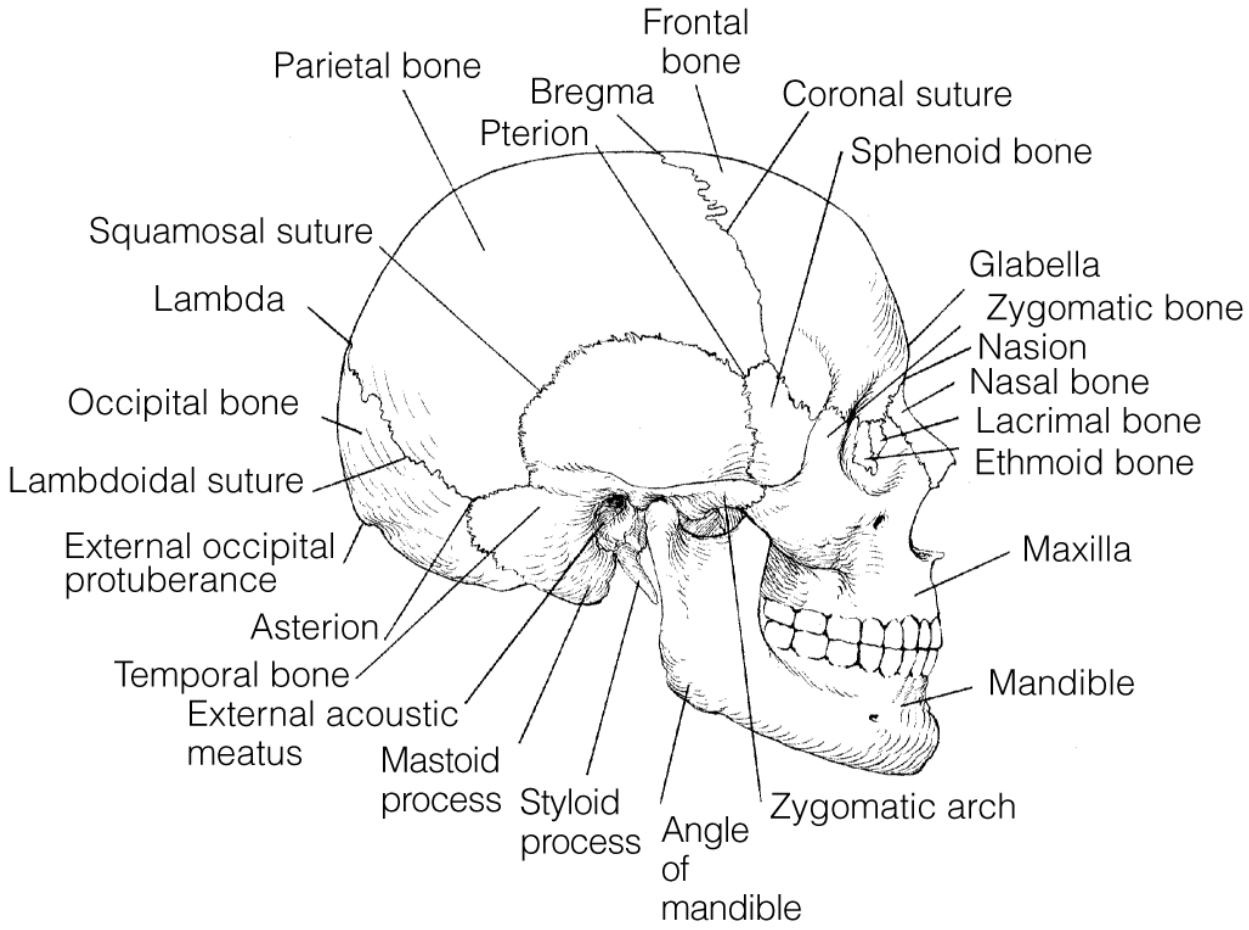
Anatomic Features of the Human Spinal Cord



Anatomic Features: Spinal nerves and internal organization of the spinal cord (grey and white matter)

Function: Relays information to and from the brain; responsible for simple reflexive behaviour.

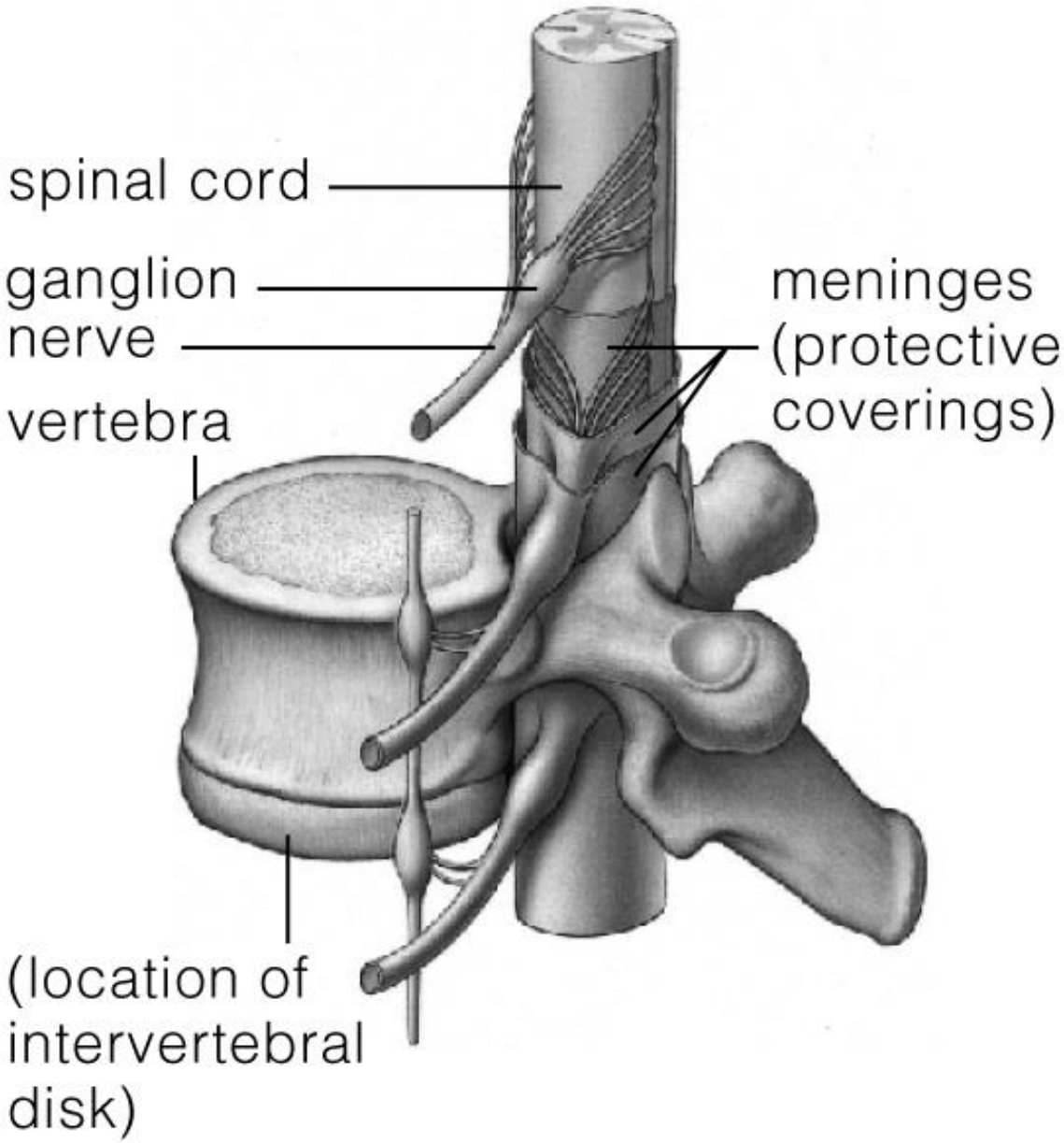
Anatomic Features of the Human skull



Anatomic Features: A fused connection of bony plates covering the brain

Function: Protection of the brain

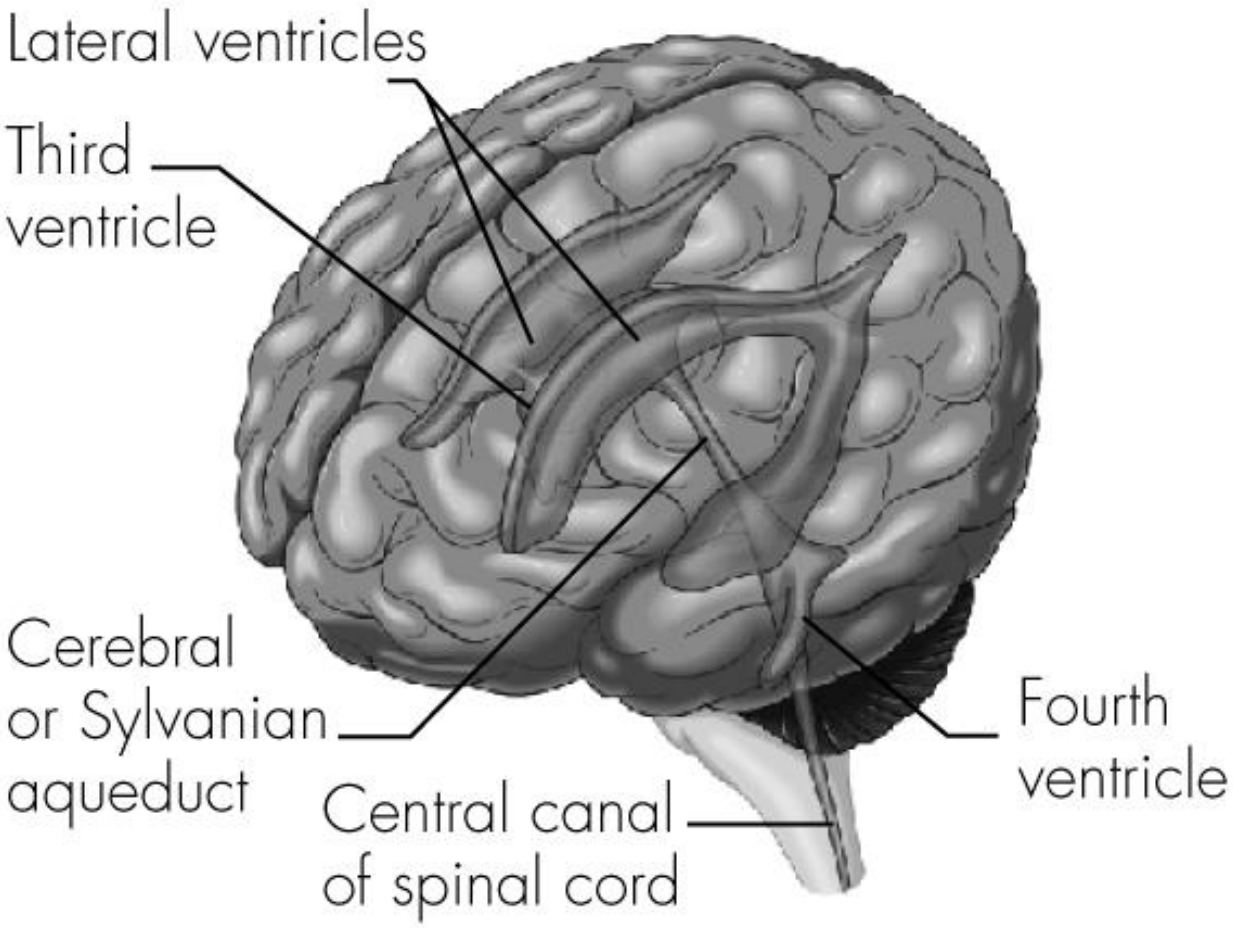
Anatomic Features Protective Meninges of the CNS



Anatomic Features: Dura mater, arachnoid membrane, and pia mater

Function: Protective covering of the central nervous system (CNS), location of venous drainage, and cerebrospinal fluid absorption

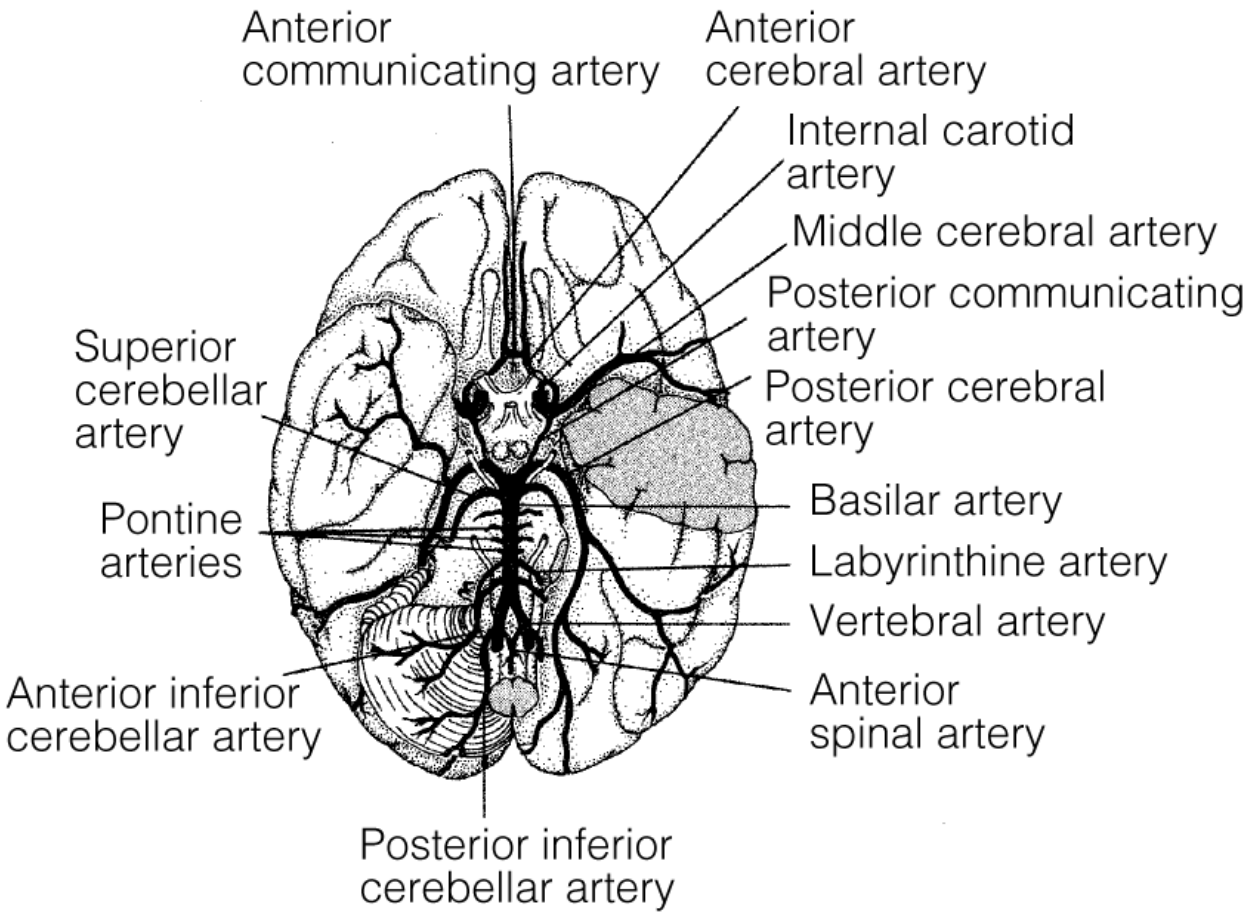
Anatomic Features of the Ventricular System



Anatomic Features: Lateral (1st and 2nd), 3rd, and 4th ventricles, choroids plexus, cerebral aqueduct, and arachnoid granulations

Function: Balancing intracranial pressure, cerebrospinal fluid production, and circulation

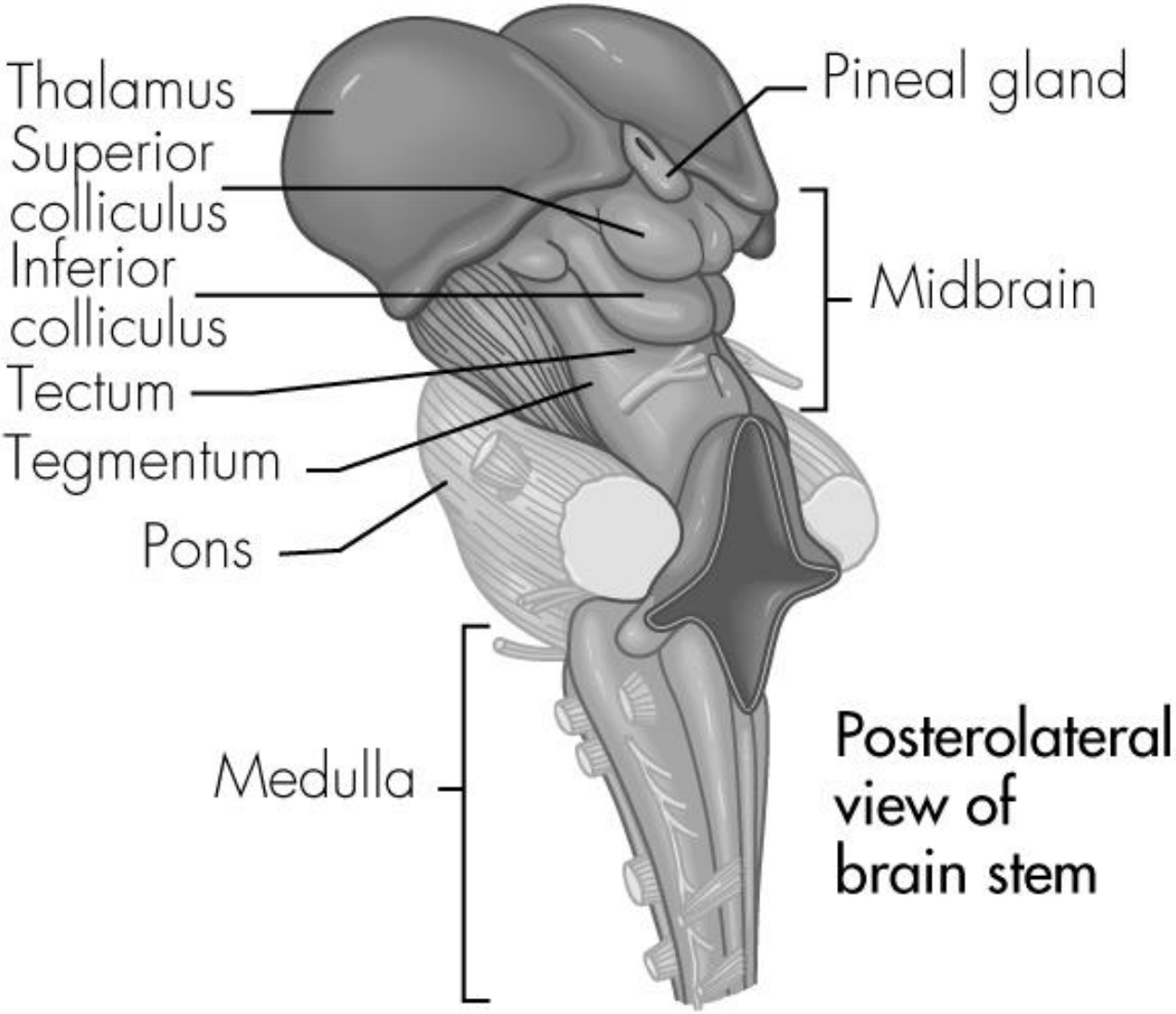
Anatomic Features of the Brain's Vascular System



Anatomic Features: Arteries, veins, circle of Willis

Function: Arteries provide nourishment, oxygen, and other nutrients to the brain' the veins carry away waste products

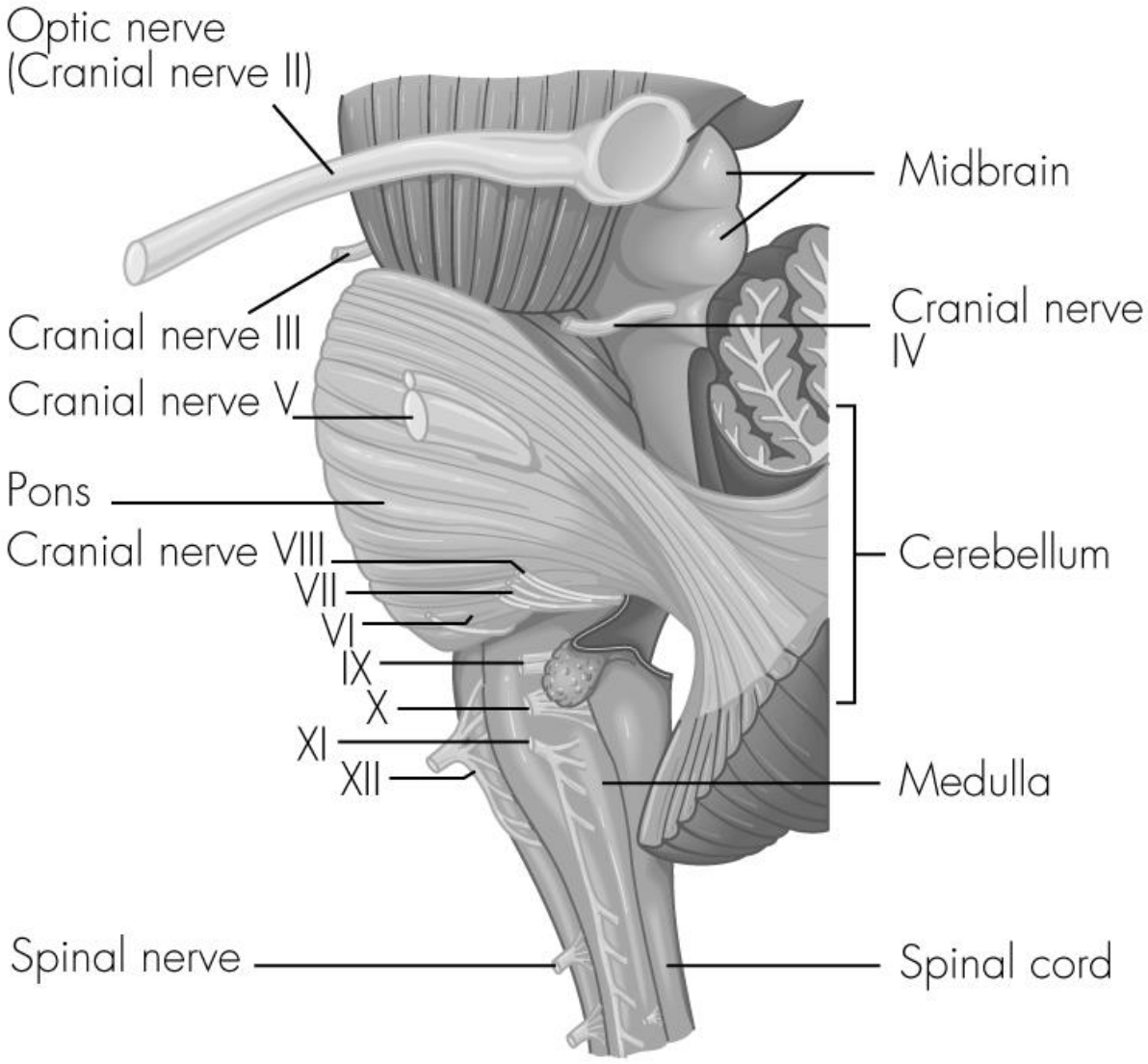
Anatomic Features of the Lower Brain Stem



Anatomic Features: Hindbrain contains the medulla oblongata (myelencephalon), and pons (metencephalon); Midbrain contains the tectum and tegmentum, cranial nerves, reticular activating system

Function: Relays information to and from the brain; responsible for simple reflexive behaviour

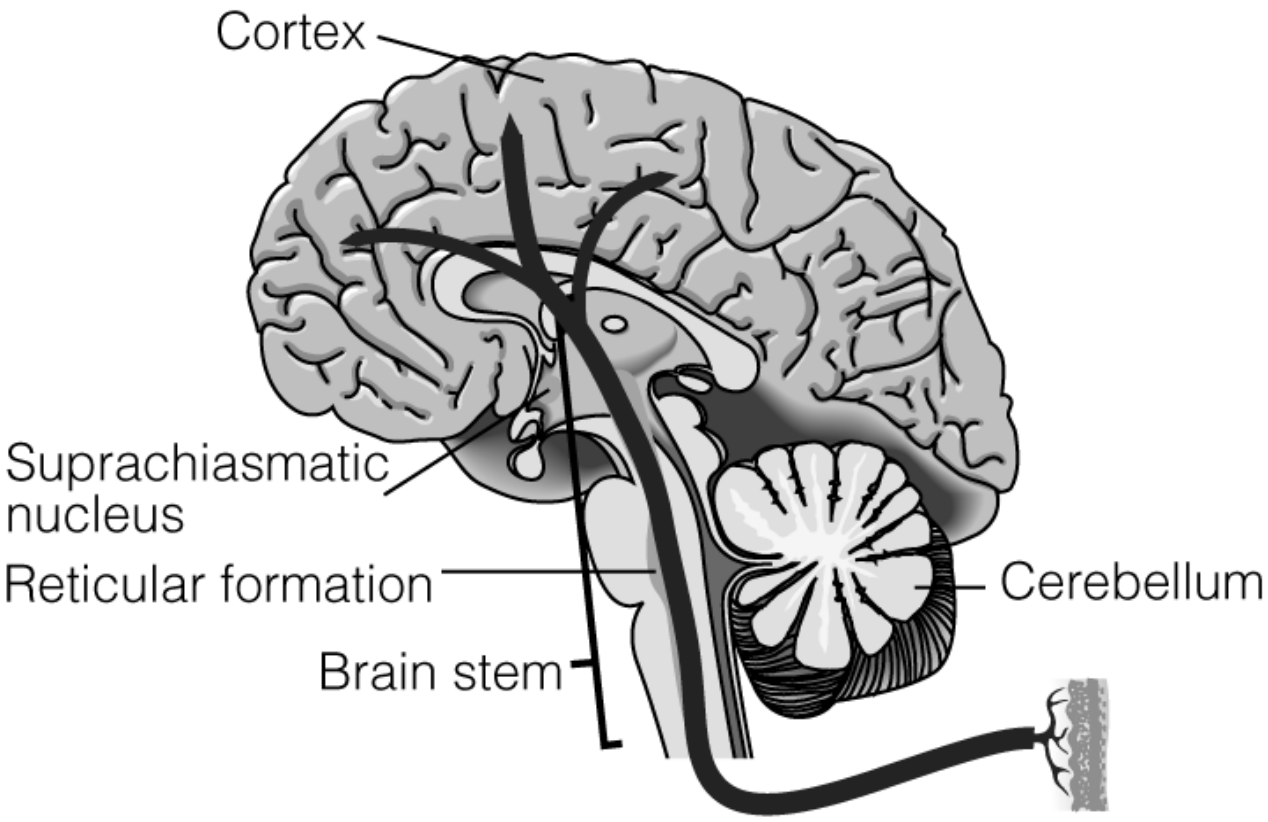
Anatomic Features of the Cranial Nerves



Anatomic Features: Located within the brain stem

Function: Conducting specific motor and sensory information

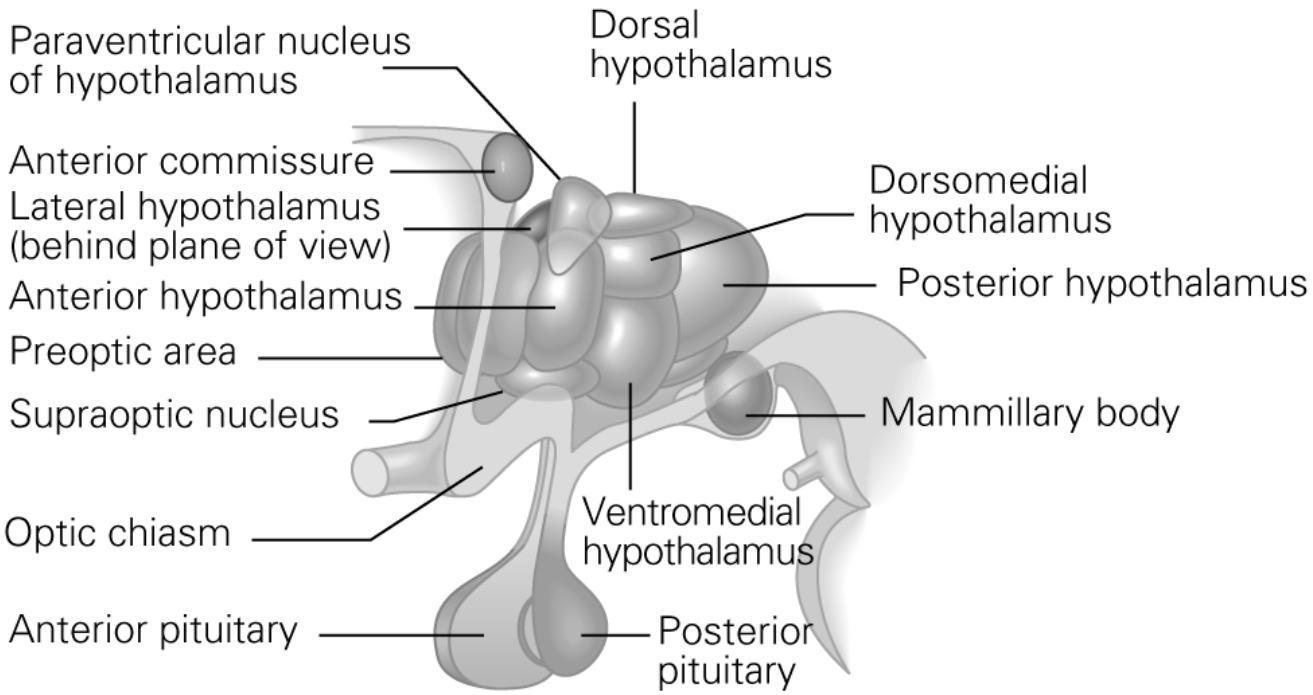
Anatomic Features of the Reticular Formation



Anatomic Features: Neural network within the lower brain stem connecting the medulla and the midbrain

Function: Non-specific arousal and activation, sleep and wakefulness

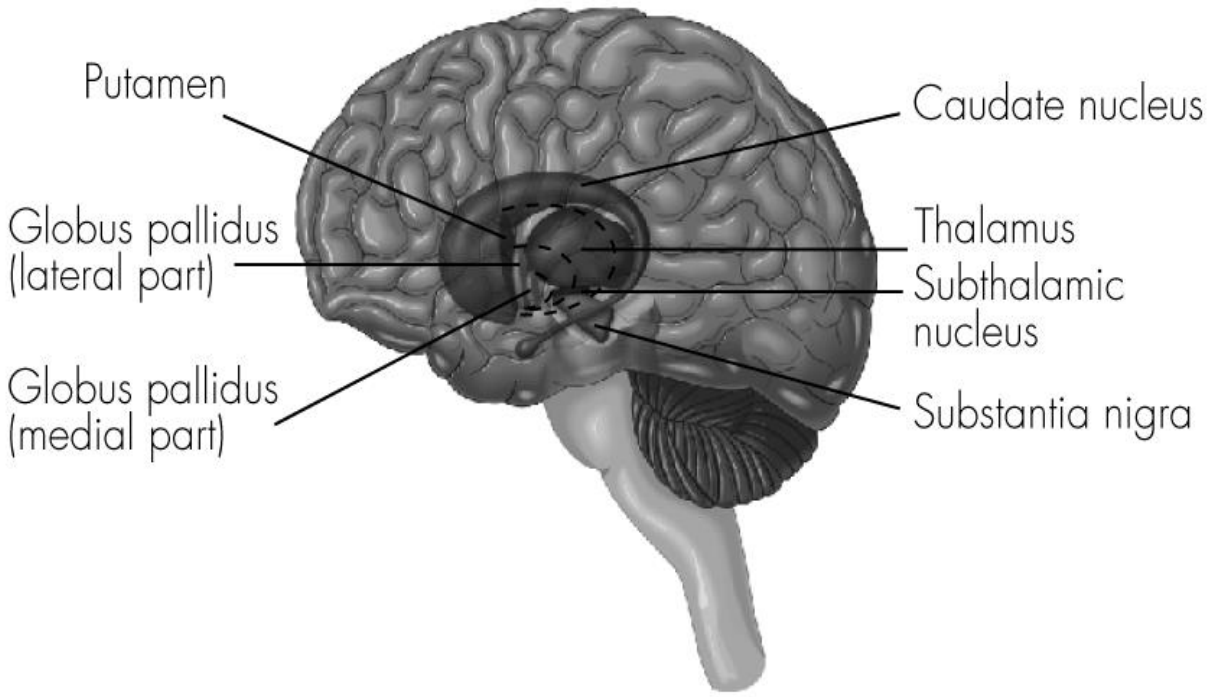
Anatomic Features of the Hypothalamus



Anatomic Features: Hypothalamic nuclei, major fibre systems, and third ventricle

Function: Activates, controls, and integrates the peripheral autonomic mechanisms, endocrine activity, and somatic functions, including body temperature, food intake, and the development of secondary sexual characteristics

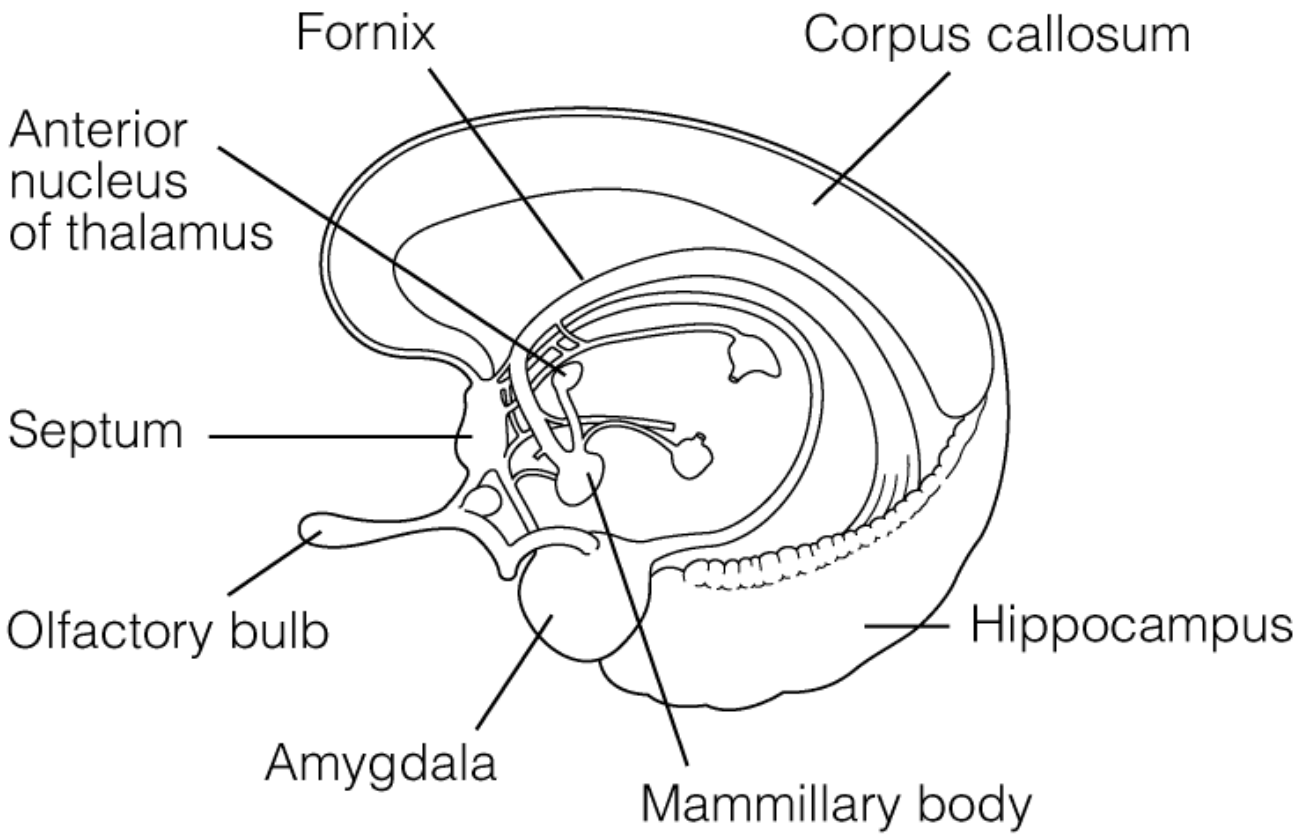
Anatomic Features of the Basal Ganglia



Anatomic Features: Structures of the caudate nucleus, putamen, globus pallidus, substantia nigra, and subthalamic nuclei

Function: Important relay stations in motor behaviour (such as the striato-pallido-thalamic loop); connections from part of the extrapyramidal motor system (including cerebral cortex, basal nuclei, thalamus, and midbrain) and coordinate stereotyped postural and reflexive motor activity

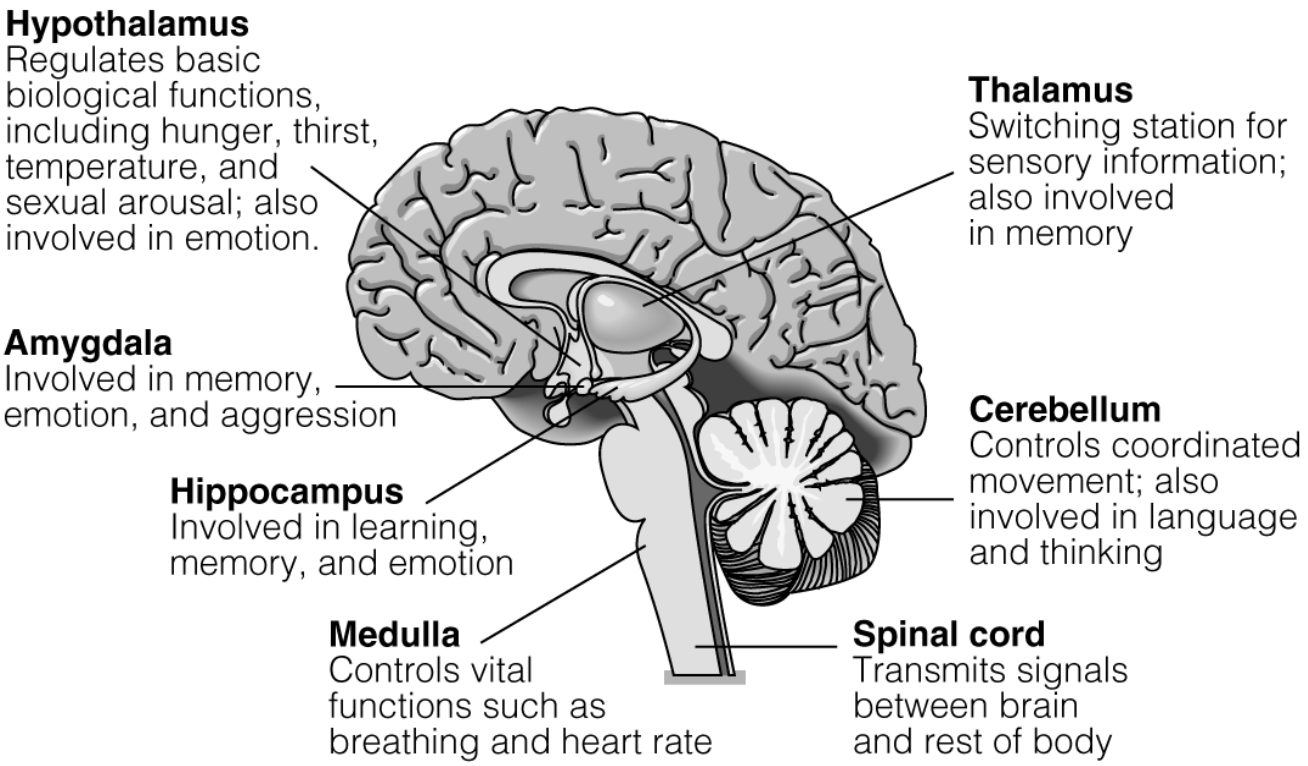
Anatomic Features of the Limbic System



Anatomic Features: Structures of the amygdala, hippocampus, parahippocampal gyrus, cingulate gyrus, fornix, septum, and olfactory bulbs

Function: Closely involved in the expression of emotional behaviour and the integration of olfactory information with visceral and somatic information

Anatomic features of the cerebral hemispheres



Anatomic Features: Structures of the frontal, parietal, occipital, and temporal lobes

Function: Higher cognitive functioning, cerebral specialization, and cortical localization

