

MEDICAL TERMINOLOGY BASICS

A course designed for non-licensed employees working
in healthcare settings.

What to expect

This course contains 11 modules. Each module covers a different topic. You will want to go in order of the modules to get the best learning experience. There are activities and quizzes built into the modules, please complete them all.

Modules will take approximately 10-15 minutes each to complete. You may stop at any point and then come back at another time and resume where you left off. Just take note of what module and section you were working on when you stopped. You can find the modules listed on the left side of your computer screen.

INTRODUCTION

MODULE 1

The Basics

Why should I take this course?

Have you ever felt as though you and the person you were speaking with were not speaking the same language? They were using medical terms you didn't know and were not certain how to help them?

This course can help prevent that from happening!

You will learn:

- Basic medical terms
- How to decipher complex medical terms
- How to direct people to the correct physician or department

Understanding medical terminology will:

- Improve customer service
- Improve patient satisfaction
- Improve safety and care

2 Main Categories of Med Terms

1. **Descriptive:** These names may describe the location, color, size, shape, or functionality.

- Muscular Dystrophy
- Osteoporosis
- Anemia
- Retinoblastoma

2. **Eponym:** These terms are derived from a name of a person or place.

- Lou Gehrig's disease (ALS) named after the baseball player who was diagnosed with the disease in 1939 ¹⁰
- Alzheimer disease named after Dr. Alois Alzheimer, the physician who discovered the disease in 1906 ¹⁰
- Ebola hemorrhagic fever discovered along the Ebola River in Zaire in 1976 ¹⁰
- Lyme disease discovered in Lyme, Connecticut in 1975 ¹⁰

The Focus

Recently names are being changed to be more descriptive. This course will focus on these descriptive terms as they will be the most beneficial for you to learn.

Let's Practice Breaking up Long Words

Echocardiogram

- Beginning (Prefix):echo
- Middle (Root):cardio
- Ending (Suffix):gram

Nephrology

- Middle (Root):Nephr
- Ending (Suffix): ology

Now that we know how to break up medical terms, let's explore what they mean.

Word Construction

Medical terms typically consist of 3 major parts

- Beginning (Prefix): Usually identifies a subpart of the main meaning
 - Could be about size, shape, color, direction, amount, etc.
- Middle (Root): Main meaning
 - Often a part of the body
- End (Suffix): May modify the main meaning or describe who or what the word is referring to
 - Can refer to a test, a problem, or a person
 - Can also be descriptive

First, Let's Learn Prefixes and Suffixes aka Beginnings and Endings

- Don't worry about whether the word may be a prefix or a suffix, just learn what it means.
- These prefixes and suffixes will reappear in modules throughout this course, so you will have multiple opportunities to get them down.
- Try not to get frustrated, you can learn this!

Things to Remember...

When terms are whole they may be overwhelming, but if you break it up you may be able to distinguish the different parts.

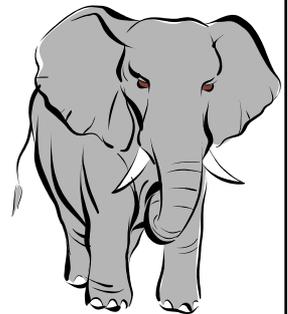
Medical terms have similarities and differences in their construction.

- They all will contain a root word
- Though some may only have 2 parts
- This will cause the root of the word to appear in different places.
 - Examples: tachycardia and cardiologist

Sizes



Micro = Small



Macro =
Large

**mega
and
megaly**
=
enlarged



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Tests and Procedures

graph and graphy
= taking a recording or image
Examples: Radiography, Mammography, Electrocardiograph

gram = the image that is produced
Examples: Echocardiogram, Mammogram

echo = using ultrasonic waves

electro = using electricity

scopy and scopic = to look




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Rates

 **tachy = fast**

 **brady = slow**

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**ectomy = to cut out
or remove**



otomy = to cut into

Hyper = High, Above Normal



Hypo = Low, Below Normal



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**ostomy = to make a
mouth**



or a permanent opening

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Problems

itis = inflammation
osis = abnormal condition or disease
path and patho = disease
dys = not working correctly
mal = bad
sept or septo = infection
oma = tumor
carcin and carcino = cancerous



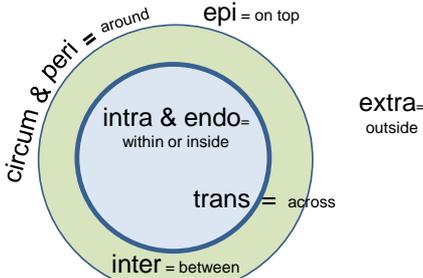
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Let's Practice

Go to the Module 1 Practice Activity
 After you complete the Module 1 activity
 you can start Module 2.

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Locations



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MODULE 2

The Circulatory System

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People and Specialties

iatory = medical treatment
iatrist = person providing treatment

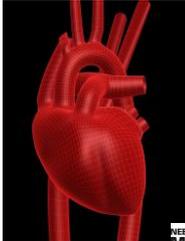
ology = science or study of
ologist = person who studies/specializes in



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What is the Circulatory System?

The circulatory system includes the heart, arteries, veins, and lungs, it's role is circulating blood throughout the body.⁽¹⁾



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Let's learn some root words from the circulatory system



Cardi and Cardio

Both refer to the Heart

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Words you may hear in the hospital

- **Coronary**- pertains to the heart
- **Cardiopulmonary Resuscitation (CPR)**- refers to the treatment you receive when the heart stops beating or breathing stops. CPR may include mouth to mouth breathing, chest compressions, electric shock to restart the heart, breathing tubes to open the airway, and medications.
- **Code/Code Blue(Medical Emergency)**- when the heart stops beating or breathing stops a "code" is called and CPR/resuscitation is initiated. Calling a "code" alerts others to come assist with resuscitation protocols.
- **Anesthetic**- a drug that causes loss of sensation or pain
- **Anesthesia**- the use of medications and close monitoring to provide comfort and maintain vital life functions during surgery or other medical procedures, patient is in a temporary state of unconsciousness and does not feel pain
- **Preoperative or pre-op**- refers to before surgery, patients may have pre-op instructions to complete at home and will also have pre-op procedures before they have surgery, also can refer to the unit where patients are prepared for surgery
- **Ambulatory (outpatient) surgery**- same day surgery and discharge, can also have ambulatory diagnostic procedures

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Terms About Blood



- hem and hemo= blood
- emia = blood
- Plasma = liquid portion of blood
- Thromb or Thrombo refers to a blood clot or blood clotting
- Arteries: carry blood away from the heart to the rest of the body
Examples: Coronary arteries supply blood to the heart, Carotid arteries supply blood to the brain.
- Veins: carry blood to the heart

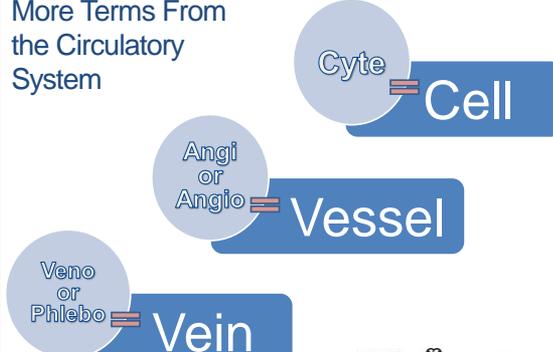
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Cardiovascular Conditions & Diseases

- **Congestive heart failure (CHF) or heart failure**- occurs when the heart can't pump enough blood throughout the body, causes fluid buildup in the lungs, liver, stomach and intestines, and arms and legs. This does NOT mean the heart has stopped, but it is a very serious condition with the only cure being a heart transplant.
- **Myocardial infarction (MI) or heart attack**- interruption of blood flow to the heart that causes damage to the heart muscle, does not cause changes on the ECG.
- **ST segment elevation myocardial infarction (STEMI)**- coronary artery is completely blocked and causes changes on the ECG.
- **Angina**- chest pain that occurs when the heart is not getting enough blood.
- **Acute coronary syndrome**- general term the includes heart attacks and unstable angina.

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More Terms From the Circulatory System



- Cyte = Cell
- Angi or Anglo = Vessel
- Veno or Phlebo = Vein

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Cardiovascular Conditions & Diseases (Continued)

- **Aortic aneurysm**- stretching of the aorta, which is a major artery.
- **Aortic dissection**- rupture of the aorta.
- **Arrhythmia**- irregular heartbeats, can be too fast or too slow.
- **Atrial fibrillation (A-fib)**- kind of arrhythmia, fast and irregular contraction of the heart's upper chamber.
- **Ventricular fibrillation (V-fib)**- kind of arrhythmia, disorganized signals in the heart make it not pump effectively and leads to death unless treated with an electric shock called a defibrillation.
- **Tachycardia**- fast heart rate
- **Bradycardia**- slow heart rate

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Other Circulatory System Conditions & Diseases

- **Atherosclerosis**- plaque buildup in the arteries, decreases the amount of blood flowing through the body.⁽¹⁾
- **Peripheral arterial disease (PAD)**- usually results from atherosclerosis, this is the hardening of arteries that supply blood to the arms and legs.⁽¹⁾
- **Anemia**- condition when blood has a decreased number of red blood cells.⁽¹⁾

People

- **Cardiologist**- a physician who specializes in diagnosis and treating diseases of the heart
- **Cardiovascular surgeon**- a physician who has specialized in surgical procedures related to the heart
- **Cardiothoracic surgeon**- a physician who has specialized in surgical procedures related to the heart, lungs, and other organs in the chest
- **Hematologist**- a physician who specializes in diseases of the blood
- **Anesthesiologist**- a physician who specializes in perioperative care, development of an anesthetic plan, and administration of anesthetic.⁽¹⁾
- **Pathologist**- a physician who specializes in examining tissues and body fluids, verifying the accuracy of lab tests, and interpreting results to determine an accurate diagnosis and treatment.⁽¹⁾

Common Cardiovascular Tests & Procedures

- **EKG or ECG (Electrocardiogram)**- measures the electrical activity of the heart. This can be done in the patient's room.
- **Echocardiogram**- uses ultrasound to create a picture of the heart. This procedure is done in the Echo Lab.
- **Exercise stress test**- measures heart rate while walking on a treadmill.
- **Chest X-ray**- shows a picture of the heart, lungs, and other organs in the chest. This procedure is typically done in Radiology.
- **Cardiac catheterization**- a thin tube is inserted and threaded through an artery in the arm, groin, or neck to reach the coronary artery and look inside the arteries for blockages. This procedure is done in the Cardiac Catheterization Lab.

Places

- **Cardiac Catheterization Lab (cath lab)**- performs a variety of diagnostic tests, including assessment of the coronary arteries, heart valves, and heart muscle.
 - Procedures performed in the cardiac catheterization lab
 - Diagnostic heart catheterizations
 - Angioplasty
 - Stent placement
 - Intra-aortic balloon pump insertion
 - Cryoablation
 - Intravascular ultrasound
- **Chest Pain Unit**- offers round-the-clock expert, time-critical care to patients with acute coronary symptoms
 - Assessment may include
 - Lab work
 - Stress testing
 - Diagnostic imaging
 - Heart scans

Common Cardiovascular Tests & Procedures (Continued)

- **Coronary angiogram**- looks at the flow of blood throughout the heart and for any blockages. Can be used in conjunction with a cardiac catheterization in the Cardiac Catheterization Lab.
- **Computed tomography (CAT or CT scan)**- fast and accurate diagnostic test that produces multiple images of the inside of the body, can provide greater detail than traditional x-rays.
 - Used to diagnose cardiovascular disease, cancer, musculoskeletal disorders, infectious disease, appendicitis, and trauma.
- **Cryoablation**- is an advanced surgical procedure used to treat atrial fibrillation. This is done in the Cardiac Catheterization Lab.

Places (Continued)

- **Cardiac Rehab**- medically supervised program to help improve health and well-being of patients with heart problems
 - Rehab team can include: family practice doctor, cardiologist, cardiovascular surgeon, nurses, exercise specialist, physical therapist, occupational therapist, dietician, mental health practitioner, and a case manager
- **Post anesthesia care unit (PACU)**- all patients will go to the PACU following surgery and anesthesia. Their vital signs (heart rate, blood pressure, breathing, and temperature) are closely monitored as well as their pain.

Let's Practice

Go to the Module 2 Practice Activity

After you complete the Module 2 activity you can start Module 3.



Let's learn some root words from the respiratory system

rhin or rhino  = nose

pulmo  = lungs

plasty  = reconstruction



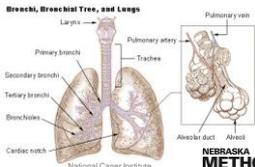
MODULE 3

The Respiratory System



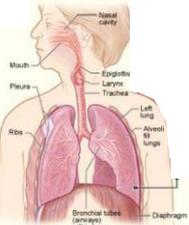
More respiratory system roots

- Bronch or broncho = lung air passageway
- Laryng or laryngo = larynx or voicebox
- Pne or pneu or pnea = breath or air
- Trache or tracheo = trachea or windpipe
- Ptysis = coughing or spitting




What is the Respiratory System?

The respiratory system consists of the organs and tissues needed for breathing.



The main parts include:

- Lungs and connected blood vessels
- Airways
 - Mouth
 - Nose
 - Larynx (voice box)
 - Trachea (windpipe)
 - Bronchial tubes
- Muscles needed for breathing
 - Diaphragm
 - Intercostal muscles
 - Abdominal muscles
 - Muscles in the neck and collarbone

<http://www.nlm.nih.gov/health/health-topics/topics/rw/system.html>



Words you may hear in the hospital

Nasal Cannula



Nasal cannula (small flexible plastic tubes) directs oxygen into the nose.

Portable oxygen container

- Continuous positive airway pressure therapy (CPAP)- uses mild air pressure to keep the airways open and make breathing easier
- Aspirate- drawing fluids from the gastrointestinal tract into the lungs, can lead to pneumonia if the aspirated materials contain bacteria
- Asphyxia- lack of oxygen and excess carbon dioxide; suffocation
- Ventilator- a machine that supports breathing by pushing air into lungs and removing carbon dioxide from the body.







Respiratory Conditions & Diseases

- **Chronic Obstructive Pulmonary Disease (COPD)**- group of lung diseases that block airflow making breathing difficult.
 - **Emphysema**- occurs when the air sacs (alveoli) at the end of the smallest air passages (bronchioles) in the lungs are slowly destroyed.
 - **Chronic Bronchitis**-inflammation in the bronchial tubes.
- **Cystic Fibrosis (CF)**- an inherited condition that affects the cells that produce mucus, sweat, and digestive juices causing these fluids to be thick and sticky, which causes them to clog tubes and ducts, especially in the lungs and pancreas.
- **Atelectasis**- collapsed lung
- **Pneumonia**- infection in one or both lungs.
- **Asthma**- chronic lung disease that inflames and narrows airways.
- **Pulmonary Embolism (PE)**- sudden blockage in a lung artery, usually caused by a blood clot.

People and Places

- **Pulmonologist**- a physician specializing in diseases of the lungs
- **Thoracic surgeon**- a physician who has specialized in surgical procedures related to the heart, lungs, esophagus, and other organs in the chest
- **Respiratory therapist**- works to prevent, identify, and treat acute or chronic breathing problems
- **Exercise physiologist**- works with patients in rehab for heart disease and other chronic diseases to oversee the analysis, improvement, and maintenance of health and fitness, conducts exercise stress tests
- **Pulmonary Diagnostic Laboratory**- conducts inpatient and outpatient pulmonary testing
 - Lung function evaluations with bronchodilator testing
 - Stress testing
 - Nutritional metabolic measurements

Respiratory Conditions & Diseases (Continued)

- **Respiratory distress syndrome (RDS)**- breathing disorder common to preterm infants due to lack of lung surfactant, makes breathing difficult.
- **Acute Respiratory distress syndrome (ARDS)**- sudden failure of the respiratory system, can develop in anyone over 1 year old who is critically ill.
- **Sleep apnea**- common chronic disorder where there are pauses in breathing or shallow breaths during sleep.
- **Insomnia**- common sleep disorder where people have trouble falling asleep, staying asleep, or both.
- **Narcolepsy**- disorder that causes period of extreme daytime sleepiness.
- **Periodic limb movement disorder**- episodes of repetitive limb movements during sleep, may cause partial or complete awakening.

Let's Practice

Go to the Module 3 Practice Activity

After you complete the Module 3 activity
you can start Module 4.

Respiratory Tests

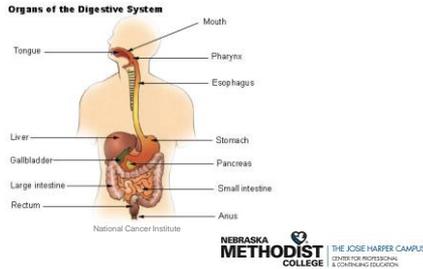
- **Lung function or pulmonary function tests**- measure how well the lungs function.
- **Computed tomography (CAT or CT scan)**- fast and accurate diagnostic test that produces multiple images of the inside of the body, can provide greater detail than traditional x-rays.
 - Used to diagnose cardiovascular disease, cancer, musculoskeletal disorders, infectious disease, appendicitis, and trauma.
- **Stress testing**- provides information about how your heart and lungs function during physical exercise
- **Nutritional metabolic measurements**- measure metabolic basal rates to determine a patient's need for nutritional support

MODULE 4

The Digestive System

What is the Digestive System?

The digestive system, also called the gastrointestinal tract, starts with the mouth and ends with the anus.

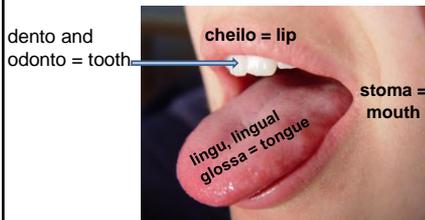


Words you may hear in the hospital

- **Nasogastric tube (NG tube)**- a tube that is placed in through the nose down to the stomach that delivers food and medicine to patients unable to eat or it can be used to suction out stomach contents
- **Intravenous lines or IV-** tubes that deliver medication, fluids, and even blood directly into a person's veins
- **Bariatric**- branch of medicine that deals with the causes, treatment, and prevention of obesity, or being overweight
- **Obesity**- an increase of 20% or more above your ideal body weight
- **Morbid obesity**- being 100 pounds or more over ideal body weight or having a Body Mass Index (BMI) over 40



Let's learn some root words from the digestive system



gingivo = gums

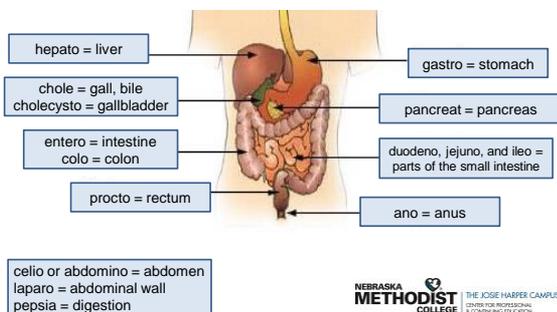


Digestive System Conditions & Diseases

- **Nausea**- uneasiness of the stomach, accompanied by the urge to vomit
- **Peptic ulcer disease**- sore in the lining of the stomach or duodenum, first part of the small intestine, causes burning stomach pain.⁽²⁾
- **Gastroesophageal reflux disease (GERD)**- causes severe heartburn, occurs when the esophagus does not close properly and stomach contents leak up into the esophagus and irritate it.⁽²⁾
- **Cirrhosis**- scarring of the liver from injury or long-term disease, most common causes are alcoholism and hepatitis.⁽²⁾
- **Chron's**- inflammation of the digestive system that causes abdominal pain and diarrhea.⁽²⁾
- **Ulcerative colitis**- causes inflammation and sores, called ulcers, in the lining of the rectum and colon.⁽²⁾



More from the Digestive System



Digestive System Conditions & Diseases (Continued)

- **Irritable bowel syndrome (IBS)**- problem that affects the large intestine causing abdominal discomfort.⁽²⁾
- **Diverticulitis/diverticulosis**- diverticula are small pouches that bulge out through the colon/large intestine, if you have these pouches it is a condition called diverticulosis, about 50% of people over 60years old have it. If these pouches become infected or inflamed it is called diverticulitis.⁽²⁾
- **Dysphagia**- trouble swallowing
- **Jaundice**- yellowing of the skin and whites of the eyes caused by a backup of bile by-products from the blood into the body tissues
- **Pancreatitis**- inflammation of the pancreas, often caused by gallstones.⁽²⁾



Digestive System Tests & Procedures

- **Upper GI series-** a series of x-rays of the esophagus, stomach, and small intestines after swallowing barium (a fluid that can be seen by x-ray)
- **Lower GI series-** a series of x-rays of the large intestine and rectum using a barium enema
- **Endoscopy-** general term for the procedure where a physician uses a scope to look inside the body
 - **Colonoscopy-** procedure where a physician uses a scope to look inside the entire large intestine
- **Ultrasound-** imaging using high-frequency sound waves to look at organs and structures inside the body.²⁶
- **Lithotripsy-** procedure using shock waves to break up stones in the kidney, bladder, or ureter (the tube that connects the kidneys to the bladder) this breaks stones into tiny pieces that can pass out of the body in the urine.²⁶

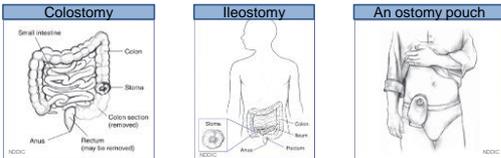
People and Places

- **Gastroenterologist-** a physician who specializes in diseases of the digestive system, which includes the stomach, esophagus, and intestines
- **Proctologist-** a physician who specializes in diseases of the rectum and anus
- **General surgeon-** a physician who specializes in a wide range of surgical procedures including the digestive system, thyroid, skin, breast, soft tissue, and hernias
- **Bariatric surgeon-** a general surgeon who specializes in bariatric surgeries
- **Speech-language pathologists (speech therapist)-** assess, diagnose, treat, and help prevent communication and swallowing disorders
- **Bariatric Clinic-** clinic where bariatric/obese patients go for initial weight loss consultation all through follow-up care. Surgical procedures are done at the hospital, all other appointments are done in the clinic.



Digestive System Tests & Procedures (Continued)

- **Guaic test/ Hemmoccult/ Fecult-** test looking for blood in the stool
- **Colostomy-** surgery to create an opening, called a stoma, from the colon to the outside of the body, thus bypassing the rectum and anus
- **Ileostomy-** surgery to create an opening, called a stoma, from the bottom of the small intestine (ileum) to the outside of the body, thus bypassing the colon, rectum, and anus.



Pictures from National Digestive Diseases Information Clearinghouse (NDDIC)

Let's Practice

Go to the Module 4 Practice Activity

After you complete the Module 4 activity
you can start Module 5.

Digestive System Tests & Procedures (Continued)

- **Laparoscopic Adjustable Gastric Banding (Lap band)-** surgery to help with weight loss for obese patients where an inflatable band is placed around the upper part of the stomach to create a small pouch above the band to hold food.²⁷
- **Laparoscopic Sleeve Gastrectomy-** surgery to help with weight loss for obese patients where approximately 80% of the stomach is removed.²⁷
- **Laparoscopic Roux-en-Y Gastric Bypass (Gastric bypass)-** surgery to help with weight loss for obese patients where a small stomach pouch is created and divided from the rest of the stomach, then the small intestine is divided and rerouted to the new small stomach pouch.²⁷

MODULE 5

The Nervous System

What is the Nervous System?

The nervous system controls, regulates, and communicates with the entire body and is the center of all mental activity. It includes the brain, spinal cord, nerves, and ganglia...¹¹



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Nervous System Conditions & Diseases (Continued)

- **Alzheimer's Disease**- age-related, non-reversible brain disorder that develops over a period of years that begins with memory loss and confusion and develops into behavior and personality changes, and leads to a decline in the ability to make decisions and speak...¹²
- **Parkinson's**- motor system disorder that includes tremor, stiffness of the limbs and trunk, slow movements, and posture instability...¹³
- **Tremors**- trembling of hands, arms, legs, jaw, and/or face...¹⁴
- **Aphasia**- neurological disorder caused by damage to the parts of the brain that are responsible for language. Effect the ability to express oneself when speaking, trouble understanding speech, and trouble reading and writing...¹⁵

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Let's learn some root words from the nervous system

cerebro and encephalo
psycho and mento
cephalo



= brain
= mind
= head

myelo
menigo



= spinal cord
= membranes around the brain and spinal cord

cele = hernia or abnormal protrusion
plegia = paralysis
neuro = nerve

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Nervous System Tests & Procedures

- **Electroencephalogram (EEG)**- detects electrical activity in the brain using electrodes attached to the scalp, used to diagnose epilepsy and other brain disorders...¹⁶
- **Neurological exam**- series of questions and tests to check the brain, spinal cord, and nerve function to check mental status, coordination, ability to walk normal, and how the muscles, senses, and reflexes work...¹⁷
- **Lumbar puncture or tap (LP or spinal tap)**- a procedure used to collect cerebrospinal fluid from the spinal cord by placing a needle in the spinal column...¹⁸
- **Brain scan**- images of the brain for diagnostic purposes
 - **Computed tomography (CAT or CT scan)**- fast and accurate diagnostic test that produces multiple images of the inside of the body, can provide greater detail than traditional x-rays
 - **Magnetic resonance imaging (MRI)**- an imaging procedure that uses a magnet, radio waves, and a computer to make a series of detailed pictures of the brain and spinal cord...¹⁹

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Nervous System Conditions & Diseases

- **Epilepsy**- spectrum of brain disorders, can cause seizures, convulsions, muscle spasms, and loss of consciousness...²⁰
- **Stroke/Cerebrovascular accident (CVA)**- occurs when oxygen-filled blood is blocked from getting to part of the brain; sudden weakness, paralysis or numbness to face, arms or legs; trouble speaking and seeing...²¹
- **Transient ischemic attack (TIA or "mini-stroke")**- occurs when there is a brief blockage of blood flow to the brain...²²
- **Multiple Sclerosis (MS)**- disease where communication between the brain and other parts of the body becomes disrupted, most have trouble with weakness, coordination, and balance...²³
- **Amyotrophic Lateral Sclerosis (ALS/ Lou Gehrig's disease)**- rapidly progressive, fatal neurological disease that attacks the nerve cells responsible for controlling voluntary muscles...²⁴
- **Migraines**- severe headaches with additional side effects including nausea and/or vomiting, and or sensitivity to light and sound...²⁵

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People

- **Neurologist**- a physician who specializes in the diagnosis and treatment of disorders of the nervous system which includes the brain and spine
- **Neurosurgeon**- a physician who specializes in the diagnosis and surgical treatment of disorders of the nervous system which includes the brain and spine



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Let's Practice

Go to the Module 5 Practice Activity

After you complete the Module 5 activity
you can start Module 6.



Let's learn some root words from the musculoskeletal system

oste and osteo  = bone

cost and costo  = rib

myel and myelo  = spine

myo and mys  = muscle



MODULE 6

The Musculoskeletal System



More root words from the musculoskeletal system

ten, teno, tendin, tendino = tendon	arth and arthro = joint	chondr and chondro = cartilage
burs and burso = bursa (fluid filled sac, cushion between bones and tendons or muscles around a joint)	porosis = porous	trophy = growth, development
algia and algesia = pain		



What is the Musculoskeletal System?

The musculoskeletal system includes bones, muscles, cartilage, ligaments, joints, and connective tissues. It provides form, support, stability and movement to the body.⁽¹²⁾




Words you may hear in the hospital

- **Laceration**- also called a cut, is a wound that happened by tearing the soft body tissue
- **Abrasion**- also called a scrape, is a surface injury
- **Trauma**- multiple serious injuries that could result in death or serious disability (examples: head injuries, life-threatening wounds, multiple broken bones)
- **Triage**- determining priority of patients' treatments based on the severity of their condition
- **NEDOCS**- calculation tool that helps measure and manage flow to predict overcrowding in the emergency department and hospital



Musculoskeletal System Conditions & Diseases

- **Arthritis**- stiffness in the joints.
 - **Osteoarthritis**- involves wear-and-tear damage to the joint's cartilage.
 - **Rheumatoid arthritis**- the body's immune system attacks the lining of the joint capsule causing inflammation and swelling that can eventually destroy cartilage and bone in the joint.
- **Carpal tunnel syndrome**- hand and arm condition that causes numbness and tingling, caused by a pinch nerve in the wrist.
- **Lupus**- chronic inflammatory disease that occurs when the immune system attacks the body's own organs and tissues.
- **Muscular dystrophy**- group of genetic diseases with progressive muscle weakness.
- **Myasthenia gravis**- weakness and extreme fatigue of muscles under the body's voluntary control.
- **Osteoporosis**- occurs when new bone cannot replace old bone fast enough, causes bone to become weak and brittle.
- **Osteomalacia**-softening of bones due to vitamin D deficiency.

Musculoskeletal System Tests & Procedures (Continued)

- **Fusion**- connecting the bones together with internal devices, such as metal rods, to heal into a single solid bone.
- **Arthroscopy**- procedure for diagnosing and treating joint problems where a scope (long narrow tube with a camera on the end) is inserted through an incision the size of a buttonhole so the surgeon can see inside the joint, they can even repair some kinds of joint damage during this procedure.
- **Internal fixation**- method to hold broken pieces of bone into place with metal plates, pins, or screws while the bone is healing.
- **Joint replacement**- damaged joint is removed and replaced with an artificial joint.
- **Osteotomy**- correcting a bone deformity by cutting and repositioning the bone.
- **Soft tissue repair**- mending soft tissues, such as torn ligaments or tendons.

Musculoskeletal System Conditions & Diseases (Continued)

- **Inflammation**- the immune response to a bodily injury, typically causing pain, heat, redness, and swelling at the site of the injury
- **Tendinitis**- inflammation or irritation of the tendon, causes pain and tenderness just outside a joint, most commonly around the shoulders, elbows, wrists, and heels.
- **Bursitis**- painful condition that affects the small fluid filled sacs called bursa that cushion the bones, tendons, and muscles near the joints.



People

- **Physical therapist**- health care professional who diagnoses and treats conditions that limit the ability to move and function.
- **Occupational therapist**- health care professionals who focus on activities that limit functional independence.
- **Orthopaedic surgeon**- a physician who specializes in problems of the musculoskeletal system including diagnosis, treatment, rehabilitation, and prevention.
- **Rheumatologist**- a physician who specializes in the diagnosis and medical management of patients with arthritis or other rheumatic diseases that affect joints, muscles, and bones.
- **Podiatrist**- a physician who specializes in diagnosing and treating conditions of the foot, ankle, and related structures of the leg.



Musculoskeletal System Tests & Procedures

- **Bone scan**- nuclear imaging test to help diagnose and track different types of bone disease, also used to detect cancer that is affecting the bones.
- **Needle biopsy**- procedure to extract a sample of cells from the body for lab testing.
- **Fluoroscopy**- imaging study of moving body structures, similar to an X-ray movie.
- **Magnetic resonance imaging (MRI)**- an imaging procedure that uses a magnet, radio waves, and a computer to make a series of detailed pictures, can be used to evaluate bones and joint abnormalities, tumors, and disorders.
- **Bone density scan**- osteoporosis test
 - **Dexa scan**- kind of bone density scan that uses enhanced X-ray technology to measure bone loss.

Let's Practice

Go to the Module 6 Practice Activity

After you complete the Module 6 activity you can start Module 7.

MODULE 7

The Urinary System

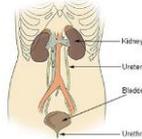
Urinary System Conditions & Diseases

- **Nephrolith**- kidney stone
- **Nephrosis**- disease of the kidneys
- **End stage renal disease (ESRD)/ Chronic renal failure**- when the kidneys cannot function enough for you to live without dialysis or a transplant.
- **Urinary incontinence**- loss of bladder control
- **Urinary tract infection (UTI)**- infection of any part of the urinary system: kidneys, ureters, bladder, and urethra.
- **Polycystic kidney disease**- inherited disorders where clusters of cysts develop in the kidneys.
- **Interstitial cystitis (painful bladder syndrome)**- chronic condition characterized by bladder pressure, bladder pain, and sometimes pelvic pain.
- **Hematuria**- blood in the urine

What is the Urinary System?

The urinary system includes the kidneys, bladder, ureters, urethra, and sphincters. The main functions are to make urine in the kidneys, store urine in the bladders, and then excrete urine through the urethra.⁽¹⁴⁾

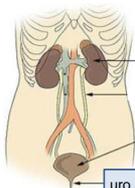
Components of the Urinary System



Urinary System Tests & Procedures

- **Cystoscopy**- procedure using a scope to look inside the bladder and urethra
- **Pyelogram- special X-ray exam using contrast dye to examine the kidneys, bladder, and ureters**
- **Dialysis**- procedure for cleaning waste products out of the blood when kidneys are not functioning
- **Lithotripsy**- procedure using shock waves to break up stones in the kidney, bladder, or ureter (the tube that connects the kidneys to the bladder) this breaks stones into tiny pieces that can pass out of the body in the urine.
- **Computed tomography (CAT or CT scan)**- fast and accurate diagnostic test that produces multiple images of the inside of the body, can provide greater detail than traditional x-rays. Can be used to visualize kidneys.
- **Ultrasound**- imaging using high-frequency sound waves to look at organs and structures inside the body.
- **Urinary catheterization**- procedure where a sterile tube is inserted up the urethra and into the bladder to extract urine
- **Indwelling urinary catheter**- sterile tube remains threaded up the urethra and into the bladder to keep the bladder draining into a bag outside the body

Let's learn some root words from the urinary system



lith = stone

hydro = water

olig and oligo = reduced or scant

pyel and pyelo = renal collecting ducts

People

- **Nephrologist**- a physician who specializes in diseases of the kidneys
- **Urologist**- a physician who specializes in the urinary tract for both men and women and the prostate and testes for men



Let's Practice

Go to the Module 7 Practice Activity
After you complete the Module 7 activity
you can start Module 8.

Let's learn some root words from the male reproductive system

orchid or test
= testes

andro = male

prostat =
prostate

vas = vessel
or duct

MODULE 8

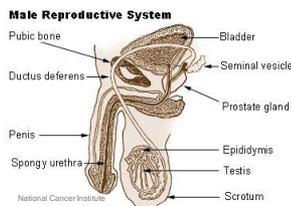
The Male Reproductive System

Male Reproductive System Conditions & Diseases

- **Varicocele**- twisted and dilated veins of the testes
- **Hydrocele**- fluid filled sac partially around the testes
- **Cryptorchidism**- when a testes doesn't descend into the scrotum
- **Benign prostatic hypertrophy (BPH)**- enlargement or swelling of the prostate gland that causes trouble with urinating

What is the Male Reproductive System?

The male reproductive system includes the organs responsible for reproduction. This includes testes, excretory ducts, seminal vesicles, prostate, urethral glands, and penis.



Male Reproductive System Tests & Procedures

- **Prostate specific antigen (PSA)**- protein marker that can help identify prostate cancer
- **Transurethral resection of the prostate**- surgical cure for benign prostatic hypertrophy
- **Orchiectomy**- testicle removal
- **Vasectomy**- cutting and sealing the tubes that carry sperm to the semen thus acting as a form of male birth control.
- **Laparoscopic or robotic prostatectomy**- removal of part of the prostate that is blocking the flow of urine can be done laparoscopically through tiny incisions or by robot.

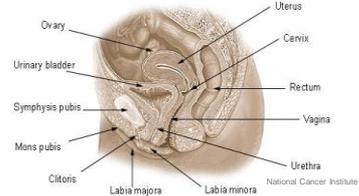
People

- **Urologist**- a physician who specializes in the urinary tract for both men and women and the prostate and testes for men
- **Andrologist**- a urologist who specializes in the treatment of conditions affecting male fertility and sexuality

What is the Female Reproductive System?

The organs of the female reproductive system produce and sustain female sex cells, transport these cells for fertilization, provide an environment for fetal development, and produce female sex hormones. It includes ovaries, Fallopian tubes, uterus, vagina, glands, and external organs.

Organs of the Female Reproductive System



Let's Practice

Go to the Module 8 Practice Activity
After you complete the Module 8 activity you can start Module 9.

Let's learn some root words from the female reproductive system

hyster and metr = uterus

salpingo and salpinx = uterine tube

colpo = vagina

oophoro = ovary

men or meno = menstration

mammo, mast = breast

pareunia and coitus = intercourse

MODULE 9

The Female Reproductive System

Female Reproductive System Conditions and Diseases

- **Endometriosis**- painful disorder where tissue that typically lines the inside of the uterus grows outside of the uterus.
- **Pelvic inflammatory disease (PID)**- infection of the female reproductive organs.
- **Prolapsed uterus/ Uterine prolapse**- occurs when the uterus slips down and protrudes out of the vagina.
- **Infertility**- not being able to get pregnant after having frequent, unprotected intercourse for at least a year.
- **Ectopic pregnancy (tubal pregnancy)**- a pregnancy implanted outside the uterus, typically in the Fallopian tube.
- **Menopause**- natural biological process that occurs with the end of fertility.
- **Polycystic ovary syndrome (PCOS)**- disorder among women in their reproductive years, ovaries are enlarged containing small pockets of fluid, and menstrual periods are irregular.

Pregnancy Terms

gestation=
period of
development in the
uterus from
conception until birth

gravida=
pregnancy

para=
live births

part and parto=
delivery

prenatal/antenatal=
before birth

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People

- **Obstetrician-** a physician specializing in the diagnosis and management of pregnancy and delivering babies
- **Gynecologist-** a physician specializing in diseases of the female reproductive system
- **OB/GYN-** most physicians specialize in both obstetrics and gynecology and are referred to as OB/GYNs
- **Urogynecologist-** a physician who is an obstetrician/gynecologist who specializes in women's urology and pelvic problems...
- **Perinatologist-** an OB/GYN who has additional training to care for high-risk pregnancies
- **Genetic counselor-** evaluates family history and medical records, orders genetic tests, evaluates the results of findings, and helps parents understand and reach decisions about what to do next
- **Sonographer-** performs ultrasounds
- **Midwife-** health care providers who offer services to women in all stages of life, including pregnancy and delivery care
- **Doula-** a labor support person

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Conditions and Diseases of Pregnancy

- **Abruptio placentae/ Placental abruption-** serious condition when placenta partially or fully pulls away from the wall of the uterus before delivery.
- **Placenta previa-** when baby's placenta partially or completely covers the opening of the cervix.
- **Preeclampsia-** serious medical condition typically characterized by high-blood pressure, high levels of protein in the urine, and can progress to decreased liver function, this can lead to needing to deliver early.
- **Eclampsia-** is when a person with diagnosed or undiagnosed preeclampsia has seizures or becomes comatose.
- **Hyperemesis gravidarum-** severe persistent nausea and vomiting.
- **Pre-term/ Early labor-** labor that begins before 37 weeks.
- **Gestational diabetes-** diabetes that develops during pregnancy.
- **Edema-** swelling caused by extra fluid trapped in the body's tissues, can be in feet, legs, hands, and any other tissues in the body.
- **High-risk pregnancy-** pregnancy that threatens the life of the mother or the fetus.

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Places

- **Perinatal Center/Maternal Fetal Medicine-** clinic that provides consultation, testing, and treatment for high-risk pregnancies; office has perinatologists, sonographers, nurses, and genetic counselors
- **Fertility Center-** cares for infertility issues such as infertility testing both men and women, fertility counseling, egg donation, in vitro fertilization, and more
- **High Risk Rooms-** suites for mothers who have high-risk pregnancies who need to remain in the hospital for monitoring of their condition
- **Labor and Delivery-** unit where laboring mothers and those believing to be in labor go for care and assessment
- **Mother and Baby unit/ Postpartum-** unit where mothers stay after delivery until they are discharged home

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Female Reproductive System Tests & Procedures

- **Colposcopy-** procedure using a scope to exam the inside of the vagina and cervix
- **Dilatation and curettage or Dilatation and extraction (D&C or D&E)-** dilation of the cervix and removal of tissue from inside the uterus, may be needed after a miscarriage.
- **Hysterectomy-** removal of the uterus (where a baby grows during pregnancy)
- **Mastectomy-** removal of the breast
- **Mammoplasty-** breast reconstruction
- **Intrauterine insemination (IUI)-** artificial insemination, sperm is placed directly into the uterus.
- **In vitro fertilization (IVF)-** complex series of procedures where mature eggs are retrieved from the ovaries, fertilized by sperm in the lab, and fertilized eggs are implanted in the uterus.
- **Ultrasound-** imaging using high-frequency sound waves to look at organs and structures inside the body or to examine the fetus.
- **Tubal ligation (tubal sterilization or tubes tied)-** fallopian tubes or cut or permanently blocked to prevent pregnancy.

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Let's Practice

Go to the Module 9 Practice Activity
After you complete the Module 9 activity
you can start Module 10.

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MODULE 10

All About Babies

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Let's learn more words that are used with babies

- **Incubator**- a fully enclosed crib that creates an optimal environment for a premature or sick newborn, including temperature and air moisture control
- **Ventilator**- a machine that supports breathing by pushing air into lungs and removing carbon dioxide from the body
- **Continuous positive airway pressure therapy (CPAP)**- uses mild air pressure to keep the airways open and make breathing easier
- **Nasogastric tube (NG tube)**- a tube that is placed in through the nose down to the stomach that delivers food and medicine to patients unable to eat or it can be used to suction out stomach contents
- **Aspirate**- drawing fluids from the gastrointestinal tract into the lungs, can lead to infection if the aspirated materials contain bacteria



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What is included in the All About Babies Module?

All About Babies includes common words you may hear, conditions and diseases, common tests and procedures, the people who work with babies, and the places where babies are cared for.



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Newborn Conditions & Diseases

- **Hypospadias**- opening of the penis is below the tip of the penis instead of on the tip. Diagnosed at birth, typically corrected at 1 year of age
- **Jaundice**- yellow discoloration in a newborn's skin and eyes caused by too much bilirubin built up in the blood.
- **Meconium aspiration**- when a newborn inhales meconium (fecal material) into the lungs at delivery
- **Respiratory distress syndrome (RDS)**- breathing disorder common to preterm infants due to lack of lung surfactant, makes breathing difficult.

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Let's learn words that are used with babies

- **Neonate**- a newborn
- **Preemie**- a premature newborn, born before 36 week
- **Meconium**- the first thick tarry stools from a newborn
- **Umbilical cord**- cord connecting the fetus to the mother for nutrition while growing in the uterus, remaining cord stump will fall off 7-10 days after delivery
- **Lactation**- milk production



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Newborn Tests & Procedures

- **Apgar score**- quick test on a baby at 1 minute and 5 minutes of life to determine how the baby is doing outside the womb, perfect score is a 10
- **Apnea monitor**- assesses for interruptions in a baby's breathing and alarms if there is too long of a pause between breaths
- **Phototherapy**- involves shining fluorescent light from bili lights to treat jaundice
- **Circumcision**- surgical removal of foreskin from around the tip of the penis

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People and Places

- **Neonatologist**- a physician specializing in premature or sick newborns
- **Pediatrician**- a physician specializing in the physical, behavioral, and mental health of children from birth until age 21
- **Audiologist**- a physician specializing in hearing, balance, and related disorders
- **Lactation Consultant**- a breastfeeding specialist
- **Neonatal Intensive Care Unit (NICU)**- intensive care unit for premature and sick newborns

What is Cancer?

Cancer is a group of diseases characterized by uncontrolled growth and spread of abnormal cells.

There are more than 100 different types of cancer.

Most cancers are named for where they started, for example, cancer that started in the breast is called breast cancer.⁽³⁴⁾



Let's Practice

Go to the Module 10 Practice Activity

After you complete the Module 10 activity you can start Module 11.

Main Categories of Cancer

- **Carcinoma**- begins in the skins or tissues that line or cover the internal organs.⁽³⁴⁾
- **Sarcoma**- begins in the bone, cartilage, fat, muscle, blood vessels, or other connective or supportive tissues.⁽³⁴⁾
- **Leukemia**- starts in blood-forming tissue, like bone marrow.⁽³⁴⁾
- **Lymphoma and myeloma**- begin in the immune system cells.⁽³⁴⁾
- **Central nervous system cancers**- begin in the tissues of the brain and spinal cord.⁽³⁴⁾

MODULE 11

Cancer

Let's learn some root words commonly used when referring to cancer

oma = tumor	ectomy = cut out/ remove	blast = immature cell
carcin = cancer	histio = tissue	malign = harmful
onco = mass/ tumor	sarco = tissue	

Describing cancer

Good

- Benign
- No metastases
- Low grade
- Well differentiated
- Negative nodes
- Remission
- Operable, resectable

Bad

- Malignant
- Metastases
- High grade
- Poorly differentiated
- Positive nodes
- Relapse
- Inoperable

Let's Practice

Go to the Module 11 Practice Activity

After you complete the Module 11 activity you can take the Posttest

Cancer Tests and Procedures

- **Positron emission tomography (PET, FDG-PET):** can help grade tumors.^(a)
- **Mammogram-** an X-ray image of the breast to look for early signs of breast cancer
- **Gamma breast imaging-** uses high resolution gamma cameras to look for early signs of breast cancer, similar to a mammogram
- **Clinical trial-** research studies that explore new medical strategies, treatments, or devices and see if they are safe and effective.^(a)

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People and Places

- **Oncologist-** a physician who specializes in cancer
- **Nutritionist-** a health professional trained in nutrition, also called a dietician
- **Social worker or hospital/medical social worker-** assess the psychosocial needs of patients and families and help connect them with resources in the community such as support groups, counseling, housing, and transportation
- **Pharmacist-** dispense medications and collaborate with physicians, health practitioners, and patients on the selection, dosages, interactions, and side effects of medications

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