

# Chapter 10: Cardiovascular System - Blood Vessels and Blood

**Building a Medical Terminology Foundation 2e – Student Companion by Kimberlee Carter; Marie Rutherford; and Connie Stevens**

This book is intended as a companion to *Building a Medical Terminology Foundation 2e* (<https://ecampusontario.pressbooks.pub/medicalterminology2/>).

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# Cardiovascular System – Blood Vessels and Blood

If you would like to review the textbook chapter content, please visit **Chapter 10: Cardiovascular System – Blood Vessels and Blood [New Tab]**.

## Learning Objectives

- Identify the anatomy and describe the main functions of blood vessels and the composition of blood
- Analyze, translate, and define medical terms and common abbreviations of blood vessels and the blood system
- Practice the spelling and pronunciation of blood vessel and blood system medical terminology
- Identify the medical specialties associated with the blood vessels and blood and explore common diseases, disorders, diagnostic test and procedures

## Key Word Components

**Identify meanings of key word components of the cardiovascular system – blood vessels and blood:**

### Prefixes

- a- (absence of, without)
- pan- (all, total)
- epi- (on, upon, over)
- inter- (between)
- peri- (surrounding, around)
- endo- (within, in)
- hypo- (below, deficient)

- hyper- (above, excessive)
- poly- (many, much)

## Combining Forms

- angi/o (vessel, blood vessel)
- aort/o (aorta)
- arteri/o (artery)
- ather/o (fatty plaque)
- chrom/o (color)
- coagul/o (clotting)
- cyt/o (cell)
- eosin/o (red, dawn, rosy)
- erythr/o (red)
- hemat/o (blood)
- hem/o (blood)
- is/o (same, equal)
- isch/o (deficiency, blockage)
- lymph/o (lymph, lymph tissue)
- lymphaden/o (lymph node, lymph tissue)
- leuk/o (white)
- myel/o (bone marrow, spinal cord)
- mon/o (one, single)
- neutr/o (neutral; neither base nor acid)
- phag/o (eat, swallow)
- phleb/o (vein)
- plasm/o (plasma)
- poikil/o (varied, irregular)
- therm/o (heat)
- thromb/o (clot)
- thym/o (thymus gland)
- splen/o (spleen)
- ven/o (vein)

## Suffixes

- -ac (pertaining to)
- -apheresis (removal)
- -ar (pertaining to)
- -blast (immature cell, embryonic)
- -centesis (surgical puncture to aspirate fluid)

- -cytosis (abnormal condition of cells (increase in cells))
- -ectomy (excision, surgical removal)
- -emia (in the blood)
- -genic (producing, originating, causing)
- -globin (protein)
- -gram (record, radiographic image)
- -graph (instrument used to record)
- -graphy (process of recording, radiographic imaging)
- -ia (condition of, diseased state, abnormal state)
- -ic (pertaining to)
- -itis (inflammation)
- -logist (specialist who studies and treats)
- -logy (specialty)
- -lysis (loosening, dissolution, separating)
- -megaly (enlarged, enlargement)
- -logist (specialist, physician who studies and treats)
- -oid (resembling)
- -oma (tumor)
- -osis (abnormal condition)
- -ous (pertaining to)
- -pathy (disease)
- -penia (abnormal reduction in number)
- -pexy (surgical fixation, suspension)
- -phage (eat, swallow)
- -plasty (surgical repair)
- -poiesis (formation)
- -sclerosis (hardening)
- -stenosis (narrowing, constriction)
- -scope (instrument used to view)
- -scopy (process of viewing)
- -stasis (stop, stopping, controlling)
- -stenosis (narrowing, constriction)
- -tomy (cut into, incision)

## Cardiovascular System – Blood Vessels and Blood Words

### Cardiovascular System – Blood, medical terms (Text Version)

Practice the following cardiovascular system words by breaking into word parts and pronouncing.

1. **angioscope (angi/o/scope)**
  - Instrument used for visual examination of blood vessels
2. **arteriogram(arteri/o/gram)**
  - radiographic image of an artery
3. **phlebectomy(phleb/ectomy)**
  - excision of a vein
4. **hemolysis(hem/o/lysis)**
  - dissolution of (red) blood (cells)
5. **multiple myeloma(multiple myel/oma)**
  - tumours of the bone marrow
6. **lymphoma (lymph/oma)**
  - tumour of lymphatic tissue (malignant)
7. **thrombocytopenia(thromb/o/cyt/o/penia)**
  - abnormal reduction of (blood) clotting cells
8. **polyarteritis (poly/arter/itis)**
  - Inflammation of many (sites in the) arteries
9. **angiосcopy(angi/o/scopy)**
  - visual examination of blood vessels
10. **intravenous (IV) (intra/ven/ous)**
  - pertaining to within a vein
11. **thrombophlebitis (thromb/o/phleb/itis)**
  - inflammation of a vein associated with a (blood) clot
12. **pancytopenia (pan/cyt/o/penia)**
  - abnormal reduction of (all) blood cells
13. **plasmapheresis (plasm/apheresis)**
  - removal of plasma
14. **hematopoiesis (hemat/o/poiesis)**
  - formation of blood (cells)
15. **lymphadenopathy (lymphaden/o/pathy)**

- disease of lymph nodes
- 16. **thrombosis(thromb/osis)**
  - abnormal condition of (blood) clot
- 17. **venogram (ven/o/gram)**
  - radiographic image of a vein
- 18. **hematology (hemat/o/logy)**
  - study of blood
- 19. **aortic stenosis (aort/ic stenosis)**
  - narrowing, pertaining to the aorta
- 20. **angioplasty (angi/o/plasty)**
  - surgical repair of a blood vessel
- 21. **aortogram (aort/o/gram)**
  - Radiographic image of the aorta
- 22. **splenomegaly (splen/o/megaly)**
  - enlarged spleen
- 23. **thrombolysis (thromb/o/lysis)**
  - dissolution of a (blood) clot
- 24. **splenopexy (splen/o/pexy)**
  - surgical fixation of the spleen
- 25. **endarterectomy(end/arter/ectomy)**
  - Rebel does not follow the rules
  - Excision within the artery
- 26. **hypothermia (hypo/therm/ia)**
  - condition of (body) temperature that is below (normal)
- 27. **thrombus (thromb/us)**
  - (blood) clot (attached to the interior wall of artery or vein)
- 28. **hematologist (hemat/o/logist)**
  - Physician who specializes and treats blood disorders
- 29. **thymoma (thym/oma)**

- tumour of the thymus gland
- 30. **hematoma (hemat/oma)**
  - tumour composed of blood
- 31. **arteriosclerosis (arteri/o/sclerosis)**
  - hardening of the arteries
  - hardening of fatty plaque (on arterial wall)
- 32. **thymectomy (thym/ectomy)**
  - excision of the thymus gland
- 33. **angioma (angi/oma)**
  - tumour composed of blood vessels
- 34. **atherosclerosis (ather/o/sclerosis)**
  - hardening of fatty plaque
- 35. **lymphadenitis (lymphaden/itis)**
  - inflammation of lymph nodes
- 36. **myelopoiesis (myel/o/poiesis)**
  - formation of bone marrow
- 37. **angiography(angi/o/graphy)**
  - radiographic imaging of blood vessels
- 38. **angiostenosis (angi/o/stenosis)**
  - narrowing of a blood vessel
- 39. **hemostasis (hem/o/stasis)**
  - stoppage of bleeding
- 40. **leukocytopenia (leuk/o/cyt/o/penia)**
  - abnormal reduction of white (blood) cells
- 41. **splenectomy (splen/ectomy)**
  - Excision of the spleen
- 42. **phlebotomy (phleb/o/tomy)**
  - incision into a vein
- 43. **phlebitis(phleb/itis)**

- inflammation of a vein

44. **erythrocytopenia (erythr/o/cyt/o/penia)**

- abnormal reduction of red (blood) cells

45. **atherectomy (ather/ectomy)**

- Excision of fatty plaque

**Activity source:** “Cardiovascular System – Blood, medical terms” by Kimberlee Carter, licensed under CC BY-4.0 from “Cardiovascular System – Blood Vessels and Blood” in Building a Medical Terminology Foundation by Kimberlee Carter and Marie Rutherford, licensed under CC BY- 4.0. / Converted to Text.

## Pronouncing and Defining Cardiovascular System – Blood Vessels and Blood Medical Terms

### Cardiovascular System – Blood Terms Not Easily broken down (Text Version)

Practice the following cardiovascular blood terms by breaking into word parts and pronouncing.

1. **phlebotomist**

- A specially trained person who draws blood or injects IV fluids

2. **anaphylaxis**

- exaggerated reaction to a previously encountered antigen may start out as mild reaction but can quickly become severe resulting in anaphylactic shock

3. **anemia**

- reduction in number of erythrocytes

4. **immunodeficiency**

- deficient immune response caused by immune system dysfunction brought on by disease or immune suppressive drugs.

5. **ischemia**

- condition of deficient blood flow due to a constriction or obstruction of a blood vessel

6. **sepsis**

- toxic condition due to spread of bacteria or their toxins from an infection



**Activity source:** “Cardiovascular System – Blood Terms Not Easily Broken Down” by Kimberlee Carter, from *Building a Medical Terminology Foundation* by Kimberlee Carter and Marie Rutherford, licensed under CC BY-4.0. / Text version added.

## Pronouncing and Defining Commonly Abbreviated Cardiovascular System – Blood Vessels and Blood Terms

**Practice pronouncing and defining these commonly abbreviated cardiovascular system – blood vessels and blood terms:**

- Ab (antibody)
- ABO (four main blood types – A, B, AB, O)
- aPTT (activated partial thromboplastin time)
- baso (basophils)
- CBC and Diff (complete blood count and differential)
- CPK (creatine phosphokinase)
- EBV (Epstein-Barr virus; cause of mononucleosis)
- EPO (erythropoietin)
- H&H (hemoglobin and hematocrit lymphs)
- Hct (hematocrit)
- Hgb (hemoglobin)
- mono (monocyte)
- PT (prothrombin time)
- PTT (partial thromboplastin time)
- RBC (red blood cell, erythrocyte)
- Sed Rate (erythrocyte sedimentation rate)
- WBC (white blood cell, leukocyte)
- WNL (within normal limits)

## Sorting Terms

Sort the terms from the word lists above into the following categories:

- **Disease and Disorder** (terms describing any deviation from normal structure and function)
- **Diagnostic** (terms related to process of identifying a disease, condition, or injury from its signs and symptoms)
- **Therapeutic** (terms related to treatment or curing of diseases)
- **Anatomic** (terms related to body structure)

## Medical Terms in Context

Place the following medical terms in context to complete the scenario below:

### Cardiovascular System – Consultation Report (Text version)

Fill in the consultation report with using the following words:

- Angiogram
- defect
- palpitations
- infection
- blood pressure
- coronary

PATIENT NAME: Jack MIRANDA

AGE: 74

SEX: Male

DATE OF CONSULTATION: March 26, 2020

CONSULTING PHYSICIAN: Kevin Palmer, MD, Cardiology

REASON FOR CONSULTATION: Coronary artery disease.

PAST MEDICAL HISTORY

1. Coronary artery disease. He had an NST MI in July 2015. \_\_\_\_\_[Blank 1] showed three-vessel disease and had PCT of RCA OM1. LAD had 60% stenosis which was no significant by FFR and medical management was recommended. He had a Grade 2 left ventricular function after the MI, but it improved a year later. His last echocardiogram in 2019 showed preserved ejection fraction at 60 with no significant valvular abnormalities and no significant wall motion abnormalities. He had an exercise Myoview in 2018 where he could achieve a workload of 9 Mets without symptoms or electrical changes. Perfusion images showed a wall fixed inferior \_\_\_\_\_[Blank 2] in keeping with his

previous inferior MI.

2. Hypertension.
3. Hypercholesterolemia.
4. Ex-smoker quit in 2016.
5. Rare alcohol.
6. Gout.
7. Chronic lymphocytic leukemia.

#### MEDICATIONS

Aspirin 81 mg q.d.

Bisoprolol 5 mg q.d.

Candesartan 60 mg q.d.

Atorvastatin 80 mg q.d.

Ezetrol 10 mg q.d.

Allopurinol 300 mg q.d.

HISTORY: Overall, he has been feeling well. He denies any exertional symptoms with usual activity. He walks his dog 20 minutes a day and denies any chest pain, shortness of breath. He denies orthopnea, \_\_\_\_\_[Blank 3], dizziness presyncope, or syncope.

He was recently hospitalized with a respiratory \_\_\_\_\_[Blank 4]. He was treated with antibiotics and was discharged 2 days later. He has been feeling better and has gone back to his usual activities.

In regards to his CLL, he has been stable with usual lymphocyte count around 30. No other cytopenia. No splenomegaly. He is being followed with a surveillance strategy with regular CBCs by hematologist.

PHYSICAL EXAMINATION: On physical exam he is alert and oriented in no acute distress, hemodynamically stable, \_\_\_\_\_[Blank 5] 120/70, heart rate 60 with regular rhythm, there is no evidence of volume overload, lungs are clear. Lab work showed white cell count of 30 with lymphocytes, 25 hemoglobin, 122 platelets, 340 creatinine, 70 EGFR, 75 sodium, 144 potassium, 5.6, A1c 5.4L, DL 1.2.

SUMMARY: Mr. Miranda seems to be stable from the cardiac point of view. He has a history of \_\_\_\_\_[Blank 6] artery disease with previous MI treated with PCI of RCA and OM1. He has a residual 60% stenosis of LAD that was not significant by FFR. He is on antiplatelet agents, high intensity statin therapy, and the combination of ARB's and beta-blockers. As long as his functional capacity remains stable, we do not need to do a follow up. Exercise treadmill test but should his symptoms change, this should be considered.

PLAN: His blood pressure is well controlled. His LDL is within the goal. There is no history of diabetes. He quit smoking 2016. I made no changed to his current treatment plan and advised him to come back in a year's time and earlier, should symptoms change.

-----  
Kevin Palmer, MD, Cardiology

**Note:** Report samples (H5P and Pressbooks) are to encourage learners to identify correct medical terminology and do not represent the Association for Health Documentation Integrity (AHDI) formatting standards.

**Check your answers:**<sup>1</sup>

**Activity source:** Neurological System – History and Physical Examination by Sheila Bellefeuille & Heather Scudder, from *Building a Medical Terminology Foundation* by Kimberlee Carter and Marie Rutherford, licensed under CC BY- 4.0. / Text version added.

## Test Your Knowledge

Test your knowledge by answering the questions below:

### Cardiovascular System -Blood Vessels and Blood Glossary (Text version)

1. Proteins produced by B lymphocytes in response to a non-self antigen are called \_\_\_\_\_[Blank 1].
  - a. Antibodies
  - b. Capillaries
  - c. Macrophages
2. An autoimmune disorder in which the body mounts an immune response against its own joint tissues, causing inflammation and damage to the joints is referred to as \_\_\_\_\_[Blank 2].
  - a. Rheumatoid Arthritis
  - b. Sickle Cell Disease
  - c. Crohn Disease
3. A freely moving piece of a substance (plaque or blood clot) that travels through the circulation until it blocks a smaller blood vessel, cutting of the supply of oxygen to the tissue is called \_\_\_\_\_[Blank 3].
  - a. Embolus
  - b. Perfusion
  - c. Perfusion
4. \_\_\_\_\_[Blank 4] is the thickness of fluids that affects their ability to flow.
  - a. Viscosity
  - b. Pneumothorax
  - c. Thrombosis
5. The process by which the body seals a ruptured blood vessel to prevent further blood loss is called \_\_\_\_\_[Blank 5].
  - a. Homeostasis
  - b. Hemostasis

c. Hemopoiesis

**Check your answers:** <sup>2</sup>

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## Notes

1. 1) Angiogram 2) defect 3) palpitations 4) infection 5) blood pressure 6) coronary
2. 1. Antibodies, 2. Rheumatoid Arthritis, 3. Embolus, 4. Viscosity, 5. Hemostasis



## Cardiovascular Combined Chapter 9 and 10 Worksheet

### Instructions

Work through the chapter and find the meaning for the following prefixes, suffixes, and abbreviations. Add in any that are missing on the worksheet.

### Prefixes and Suffixes

Prefix	Meaning	Suffix	Meaning
<b>brady-</b>		-ac	
<b>pan-</b>		-apheresis	
<b>tachy-</b>		-ar	
		-centesis	
		-ectomy	
		-genic	
		-gram	
		-graph	
		-graphy	
		-ia	
		-itis	
		-lysis	
		-megaly	
		-logist	
		-oma	
		-osis	
		-tomy	
		-ous	
		-pathy	
		-penia	
		-pexy	
		-plasty	
		-poiesis	
		-sclerosis	
		-scope	
		-scopy	
		-stenosis	

## Abbreviations

Abbreviation	Meaning
ACS	
AFib	
AICD	
aPTT	
AV	
BP	
CABG	
CAD	
CBC and DIFF	
CCU	
CPK	
CPR	
DSA	
DVT	
ECG, EKG	
ECHO	
Hct	
HF	
Hgb	
HHD	
HTN	
IV	
MI	
PAD	
PT	
PTCA	
RBC	
SPECT	
TEE	
WBC	

Words easily broken into word parts listed by combining form (root)

### Review of Word Parts

Please note that sometimes words are made up of word parts but are not translated literally. Several combining forms are shown in bold below. List their meaning from chapter 9 and 10.

**angi/o** –

1. angioma -
2. angiostenosis
3. angioplasty
4. angiography
5. angioscope
6. angiосcopy

**aort/o -**

7. aortic stenosis
8. aortogram

**arteri/o -**

9. arteriosclerosis
10. arteriogram
11. endarterectomy
12. polyarteritis

**ather/o -**

13. atherosclerosis
14. atherectomy

**atri/o-**

15. atrioventricular (AV)

**cardi/o-**

16. bradycardia
17. cardiomegaly
18. cardiomyopathy
19. endocarditis
20. myocarditis
21. pericarditis
22. tachycardia
23. pericardiocentesis
24. echocardiogram (ECHO)
25. electrocardiogram (ECG,EKG)
26. electrocardiograph
27. electrocardiography



- 28. cardiac
- 29. cardiogenic
- 30. cardiologist
- 31. cardiology

**cyt/o –**

- 32. erythrocytopenia
- 33. pancytopenia
- 34. leukocytopenia

**ech/o -**

- 35. echocardiogram (ECHO)

**electr/o -**

- 36. electrocardiogram

**hemat/o, hem/o –**

- 37. hematoma
- 38. hematologist
- 39. hematology
- 40. hematopoiesis
- 41. hemolysis
- 42. hemostasis

**isch/o-**

- 43. \*ischemia

**lymph/o –**

- 44. lymphoma

**lymphaden/o-**

- 45. lymphadenitis
- 46. lymphadenopathy

**myel/o-**

- 47. multiple myeloma

48. myelopoiesis

**phleb/o-**

49. Phlebitis

50. phlebectomy

51. phlebotomy

52. phlebologist

53. phlebology

54. thrombophlebitis

**plasm/o**

55. plasmapheresis

**therm/o**

56. hypothermia

**thromb/o**

57. thrombophlebitis

58. thrombocytopenia

59. thrombosis

60. thrombus

61. thrombolysis

**thym/o**

62. thymoma

63. thymectomy

**splen/o**

64. splenomegaly

65. splenectomy

66. splenopexy

**valv/o, valvul/o**

67. valvulitis

68. valvuloplasty

**ven/o**

- 69. venogram
- 70. intravenous (IV)

**ventricul/o**

- 71. atrioventricular

Words not built from word parts that you should memorize:

- 72. aneurysm
- 73. arrhythmia
- 74. anemia
- 75. sepsis
- 76. sphygmomanometer
- 77. bruit
- 78. occlude
- 79. phlebotomist
- 80. systole
- 81. anaphylaxis
- 82. immunodeficiency

# Words Not Easily Broken into Word Parts

## (Cardiovascular - Blood)



## Words Not Easily Broken into Word Parts – Cardiovascular - Blood

### Instructions

Type the words listed below this section. Define the word in your own words. Please number the terms.

### Example

**1. Cancer - A disease caused by an uncontrolled division of abnormal cells in a part of the body**

### Term List:

Type these terms and provide a definition for the words not easily built from word parts:

1. Aneurysm
2. Coronary
3. Platelets
4. Sepsis

# Definitions Using Word Parts



## (Cardiovascular - Blood)

### Definitions using Word Parts – Cardiovascular - Blood

#### Instructions

Type the terms from the numbered list found below. For each term keyed, divide the combining form, suffix, and prefix with a slash to show the individual word parts. Then define the term in your own words according to the rules provided in the resource (reading from the suffix, then back to the beginning of the word, then across). Be sure to number each term in your document.

#### Example

hepat/itis - inflammation of the liver

Define the following terms by breaking into word parts:

1. **Angiography**
2. **Angioma**
3. **Angioplasty**
4. **Angiostenosis**
5. **Aortic stenosis**
6. **Aortogram**
7. **Arteriogram**
8. **Arteriosclerosis**
9. **Atherectomy**
10. **Atherosclerosis**
11. **Endarterectomy**
12. **Erythrocytopenia**
13. **Hematologist**
14. **Hematology**

15. Hematoma
16. Hematopoiesis
17. Hemoglobin
18. Hypothermia
19. Intravenous
20. Ischemia
21. Leukocytopenia
22. Lymphadenitis
23. Lymphadenopathy
24. Lymphoma
25. Monochromatic
26. Myelopoiesis
27. Pancytopenia
28. Phagocytosis
29. Phlebitis
30. Phlebotomy
31. Plasmapheresis
32. Polyarteritis
33. Splenectomy
34. Sphygmomanometer
35. Splenomegaly
36. Splenopexy

**37. Thrombocytopenia**

**38. Thrombophlebitis**

**39. Thrombosis**

**40. Thrombus**

**41. Venogram**



## (Cardiovascular - Blood)

### Scenario – Cardiovascular - Blood

#### Instructions

Read aloud the following paragraph, paying close attention to the correct pronunciation of each medical term. Use the phonetic spelling provided with the term to guide you. At the conclusion of reading the paragraph and using this document, compose a list of the bolded medical terms and translate their correct meaning. Be sure to number each term in your list.

#### Scenario:

A 36-year-old female presented to the emergency department with the following symptoms: gradual onset of fatigue, restless legs, pale skin, and occasional headaches. However, this morning she woke up with chest pain and shortness of breath, which prompted a trip to the ED. On examination, the emergency physician noted an irregular heartbeat. Along with a chest x-ray and EKG, a full blood workup was ordered: a **complete blood count (CBC)**, complete metabolic panel, **cardiac (KĀR-dē-ăk)** enzymes, PT and PTT.

The **phlebotomist (flē-BŎT-ō-mīst)** obtained the blood specimens by accessing a **vein (vān)** in the patient's right arm. After the procedure, **hemostasis (hē-MŎ-STĀ-sīs)** was attained with the application of minimal pressure on the site.

Results of the patient's EKG and x-ray were normal as were her cardiac enzymes. CBC results were normal **leukocyte (loo-kō-SĪT-īs)** and **thrombocyte (THRŎM-bō-sīts)** counts, but a low **erythrocyte (ě-RITH-rŏ-sīts)** count, hemoglobin, and **hematocrit (hē-MAT-ŏ-křit)**. Because of this, the doctor ordered follow-up iron studies to be performed today. The patient received a preliminary diagnosis of iron deficiency anemia.