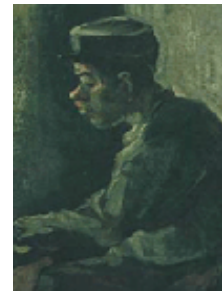


# CASE TEACHING NOTES for “A Case of Cerebrovascular Accident”

by

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## INTRODUCTION

By definition, a cerebrovascular accident (CVA), or stroke, is an injury to the brain due to an interruption in blood flow or by hemorrhage into or around the brain. It produces deficits in neurological function that relate to the specific part(s) of the brain that are affected. Stroke is a major cause of long term disability, and is the third leading cause of death in the United States each year.

To prepare for this case study, students should have general knowledge of the structure of the brain, the concept of functional areas within the brain, and an understanding of spinal reflexes.

## Objectives

After answering and discussing the questions at the end of the case, students will have learned the following:

- definitions of the terms *ischemia* and *infarction*, and the concept of *collateral blood flow* and how it relates to the development of ischemia.
- the risk factors and warning signs of stroke, and the basic mechanisms by which it occurs.
- the functional relationship between the two most important regions of the brain involved in speech.
- definitions of the terms *ipsilateral* and *contralateral*, and an understanding of how these relate to the function of the brain and spinal cord.
- how spinal reflexes can be used to localize a lesion within the nervous system.
- the process by which individuals regain neurological function following an injury to the nervous system.

This case study has been used in both a sophomore-level course in human anatomy and physiology and a senior-level course in general physiology.

## CLASSROOM MANAGEMENT

Students are provided with a printed copy of the case at least one week prior to the class in which the case will be discussed. They are told which concepts to review before attempting to answer the questions, and reference materials are placed on reserve in the college library for their use. I ask the students to do their best to answer the questions beforehand and encourage them to collaborate with one another. Students are not required to hand in written answers to the questions, but, rather, are called upon at random to answer the questions during the class discussion. These same questions appear again later on regularly scheduled course examinations. I tell students at the beginning of the term that the more effort they put into preparing each case, the more they will learn, the more fun they will have, and the better they will perform on the exams.

## Answer Key

Answers to the questions posed in the case study are provided in a separate answer key to the case. Those answers are password-protected. To access the answers for this case, go to the key. You will be prompted for

a username and password. If you have not yet registered with us, you can see whether you are eligible for an account by reviewing our password policy and then apply online or write to [answerkey@sciencecases.org](mailto:answerkey@sciencecases.org).

## REFERENCES

### *Print*

Cotran, R.S., V. Kumar, T. Collins, and S.L. Robbins. 1999. *Pathologic Basis of Disease*. (6<sup>th</sup> Ed). Philadelphia: W.B. Saunders Co.

Guyton, A.C., and J.E. Hall. 2000. *Textbook of Medical Physiology* (10<sup>th</sup> Ed). Philadelphia: W.B. Saunders Co.

Martini, F.H. 2005. *Fundamentals of Anatomy & Physiology*. (7<sup>th</sup> Ed). San Francisco: Benjamin Cummings.

### *Internet*

What Is a Stroke? StrokeSTOP—Stroke Prevention for Future Physicians. UMass Medical School and The American Stroke Association.

[http://www.umassmed.edu/strokestop/module\\_one/module\\_fr.html](http://www.umassmed.edu/strokestop/module_one/module_fr.html)

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