

## Chapter 4

# Vital Signs

**KEY TERMS** Apnea | Bradycardia | Diaphoresis | Diastolic | Dyspnea | Febrile/pyrexia | Hypertension | Hyperthermia/hyperpyrexia | Hypotension | Hypothermia | Irregular | Korotkoff sounds | Orthopnea | Orthostatic hypotension | Sphygmomanometer | Syncope | Systolic | Tachycardia | Tachypnea | Thready | Valsalva maneuver

**KEY ABBREVIATIONS** AHA | CHF | COPD | CVA | ECG | MI | mmHg | SOB

### CHAPTER OBJECTIVES

1. Be able to accurately measure each vital sign and use the proper unit of measurement.
2. Describe normal and abnormal ranges/measurements for each vital sign.
3. Understand what causes changes in each vital sign and what is normal or abnormal.
4. Describe why it is important to measure pain and how to assess pain.

### INTRODUCTION

A patient was in the therapy gym looking rather weak and pale. The therapist checked her oxygen saturation (SpO<sub>2</sub>) and discovered it was at 75% (normal is 90% or higher). The therapist immediately contacted the patient's physician, who ordered the patient to immediately be sent to the hospital. In this case, the therapist knew that performing therapy with this patient was not a good idea. The key to making this important decision was her knowledge of the normal parameters for SpO<sub>2</sub> and the ability to competently check that vital sign in the first place.

Therapists interact with a variety of patients who have a variety of diagnoses and comorbidities. Even if you are seeing a patient for a knee replacement, you should also be aware that he or she has a history of a myocardial infarction (MI) and may need his or her heart rate monitored. A patient you are treating for a cerebrovascular accident (CVA) is at risk of having another stroke and will need his or her blood pressure checked regularly. A patient you are treating for acute lower back pain may also be on oxygen and will need his or her SpO<sub>2</sub> or respiratory rate watched closely. In all of these cases, the physical therapy diagnosis may not require vital sign examination; however, the patient is not just a knee replacement, CVA, or lower back pain. The patient is a whole person with a full medical history. Additionally, vital signs often play a role in setting or reaching goals in the plan of care; therefore, they will need to be documented to show progress or lack of it.

### HEART RATE

Heart rate, also known as a person's *pulse*, is the measurement of the number of left ventricle contractions per minute. It is recorded as beats per minute (beats/min or bpm) in documentation. According to the American Heart Association (AHA), the at rest heart rate for normal chil-