

A drug's strength or ability to provide the desired effect is called its *potency*. The more potent a medication is, the smaller the amount is required to obtain the desired effect (Fast Tip 2.1). Taking multiple drugs at the same time can affect the potency of each drug taken. Some drugs potentiate (strengthen) the effects of other drugs, and some weaken them. A drug is called an **agonist** when it is taken with another drug so the two can work together. The drug combination provides a more potent effect (**synergism**) than when each drug is taken separately. Common examples of synergistic combinations are acetaminophen with codeine, used for pain relief, and codeine with a cough syrup to diminish the cough reflex and promote rest. **Antagonist** drugs do the opposite by rendering another drug less effective. For example, birth control pills can become less effective when they are taken with certain antibiotics or minor tranquilizers. Another example is the antibiotic tetracycline (e.g., Periostat, Vibramycin), which becomes ineffective when it is taken with penicillin. If a patient is taking several drugs, dosage adjustments may need to be made for each drug.

The therapeutic level of a drug can be affected by other drugs, age, nutritional factors, body size, environmental factors, gender, and culture. We discuss these factors in Chapter 3.

Natural and herbal remedies can also interact with drugs and affect dosing. Always ask the patient whether he or she is taking natural or herbal remedies. Whenever a combination of drugs is ordered, you must check your drug handbook to verify whether the drugs can be given together.

## ■ THE IMPORTANCE OF SIDE EFFECTS

Every medication carries a risk for side effects. The health-care professional must understand these effects and help the patient to prevent, minimize, or manage them. In addition, it is important to educate the patient about the distinction between side effects that he or she should try to manage and those that should be reported to the health-care provider immediately.

### Fast Tip 2.1 The Correct Anesthesia

A medication's **half-life** is the length of time required for its concentration to decrease by one-half in the blood plasma and therefore affects its duration of potency. Drugs with a long half-life may need to be taken less frequently than those with a short half-life. The effects of drugs with shorter half-lives tend to wear off faster. For example, an anesthetic with a short half-life may be chosen if the patient plans to drive home from the facility soon after treatment.

