THE MUSCULOSKELETAL SYSTEM

The musculoskeletal system consists of muscles, tendons, and ligaments that attach to the bones and joints (Fig. 12-1), and that rely on the nervous and endocrine systems to function properly. Coordinated and strong movement require healthy nerve signals, healthy muscle tissue, and adequate endocrine function. The nervous system provides the signals that make the muscles contract or relax and thus allow the body to perform tasks such as picking up a spoon and bringing it to the mouth. Even if the signals occur at the appropriate time, a muscle that is not healthy cannot perform its functions. The human skeleton is composed of 206 bones. The skeleton not only gives the body structure, it also stores minerals that help muscles move. Calcium is needed for nerves, bones, and muscles to function properly. If not enough calcium is stored in bones, the bones can break. If too much calcium is stored, not enough is available for the bloodstream to deliver to the muscles.

The endocrine system must be healthy to control the deposit of these minerals. The thyroid gland produces **calcitonin,** which allows calcium to remain in the bone and not move into the blood (Fig. 12-2).

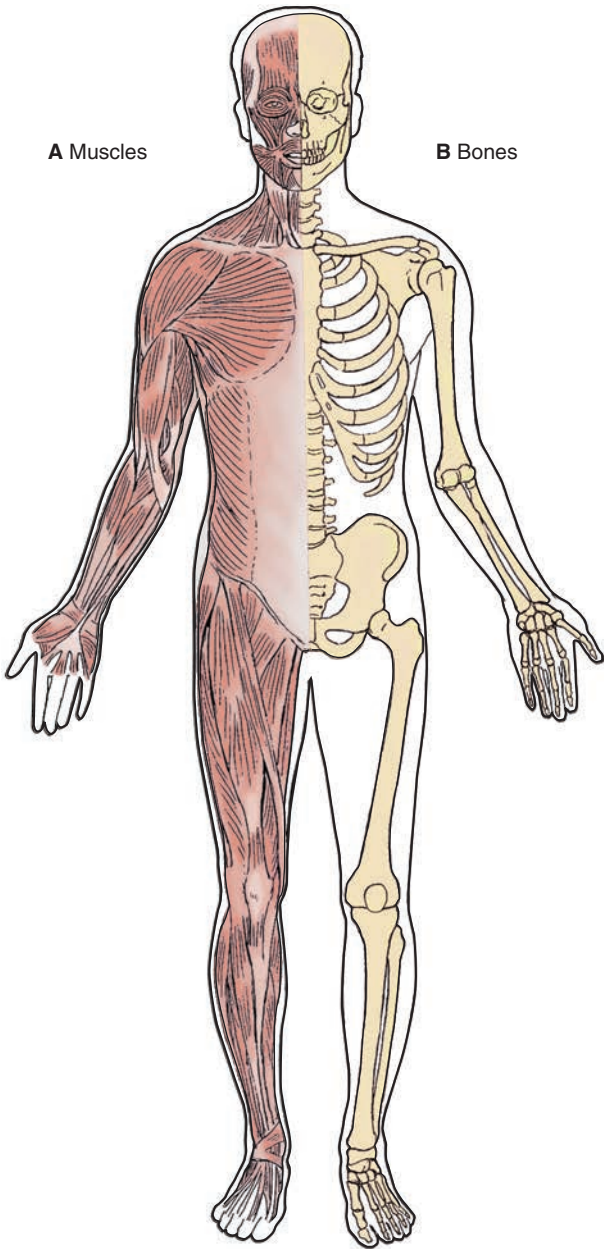

FIGURE 12-1: The musculoskeletal system is made up of (A) muscles and (B) bones that form the skeleton. The musculoskeletal system gives the body its structure and is the force behind movement.