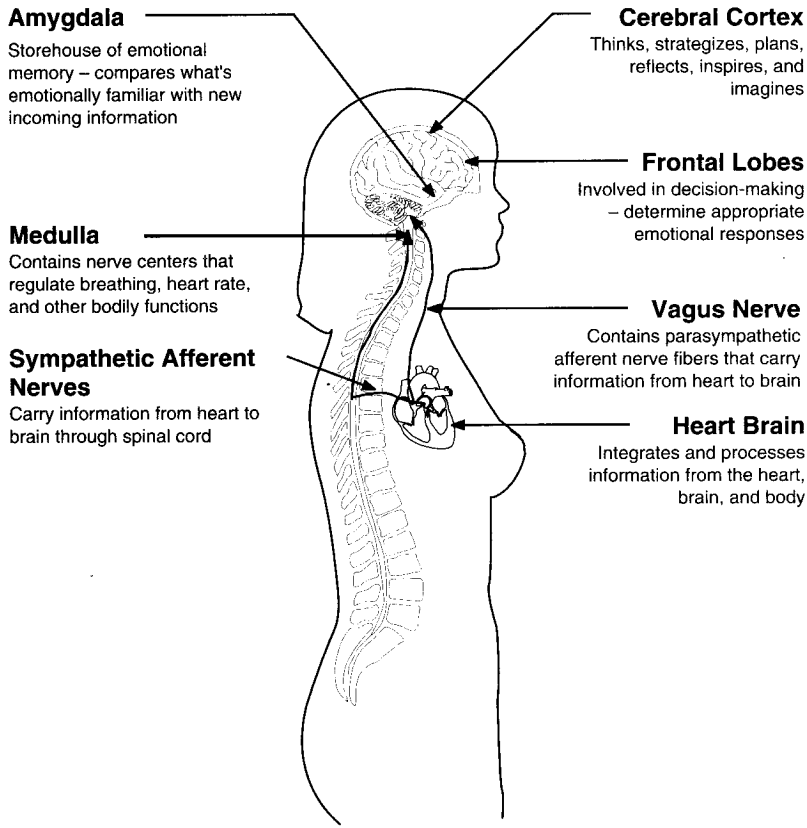

Neurological Communication from the Heart to the Brain

FIGURE 2.2. This diagram illustrates the neurological pathways through which the heart communicates with the brain. The heart's intrinsic nervous system (the *heart brain*) contains *sensory neurites* as well as *local circuit neurons* of several types. The sensory neurites, which are distributed throughout the heart, sense and respond to many types of biological information, including heart rate, pressure, hormones, and neurotransmitters. The local circuit neurons are arranged in processing stations that integrate inflowing neurological information from the brain and bodily organs with input from the heart's sensory neurites. Once the heart brain has processed this information, it sends messages to the brain via "afferent" neural pathways—that is, pathways that flow toward the brain. The *sympathetic afferent nerves* travel to the brain through the spinal cord. The *vagus nerve* contains thousands of nerve fibers, many of which also carry information from the heart to the brain. These neural pathways enter the brain in the *medulla,* a brain center that regulates many vital bodily functions. From there, the neurological information from the heart travels to higher brain centers involved in emotional processing, decision-making, and reasoning.